Orientation entrepreneuriale : racines et bourgeons.

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Entrepreneurial Orientation : racines et bourgeons

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Entrepreneurial Orientation: Roots and Buds

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Resumé de la these:
L’objectif de cette thèse est d’apporter de nouveaux éclairages théoriques et empiriques sur les mécanismes d’entrepreneuriat organisationnel, et plus précisément « orientation entrepreneuriale » (OE). Afin de mieux comprendre ce phénomène, cette dissertation est le fruit de quatre efforts successifs :

- Identifier ce qu’*est* l’orientation entrepreneuriale en le distinguant de ce que ce *n’est pas*
- Comprendre comment le construit « OE » s’intègre dans les principaux modèles d’entrepreneuriat organisationnel
- Offrir une discussion critique en synthétisant et mappant les questions existantes, dévoilant qu’il y a en fait au moins quatre conceptualisations derrière « OE », parmi lesquelles la conceptualisation initiale de Miller (1983), ignorée ou incomprise.
- Pour poursuivre dans l’intention de Miller, je propose une taxonomie de firmes selon leur gestalt d’OE, ainsi que les caractéristiques propres de chaque configuration.

Par une meilleure compréhension du phénomène d’entrepreneuriat organisationnel, cette thèse propose de contribuer à la littérature en entrepreneuriat, en management stratégique, et en management.

Mots clés: Orientation entrepreneuriale, entrepreneuriat organisationnel, innovation, proactivité, prise de risque, configurations, management entrepreneurial, performance.

Summary of the PhD

The objective of my PhD is to better understand the theoretical and empirical mechanisms of organizational-level entrepreneurship, and more precisely "entrepreneurial orientation" (EO). To better comprehend the phenomenon, this dissertation is the succession of four research efforts:

- Identify what entrepreneurial orientation *is* by distinguishing from what *it is not* (entrepreneurial management)
- Understand how the EO construct fits into the main models of firm-level entrepreneurship
- Furnish a critical discussion of EO through the synthesis and mapping of existing issues, to unveil that there are actually four conceptualizations behind the term "EO", among which the original conceptualization by Miller (1983), gone unheard or misunderstood
- In line with Miller's initial intention, I offer a taxonomy of firms according to their gestalt of EO, and the characteristics of each configuration

This dissertation aims at contributing to entrepreneurship literature, to strategic management, and to general management by improving our understanding of firm-level entrepreneurship in SMEs.

Key words: Entrepreneurial orientation, corporate entrepreneurship, firm-level entrepreneurship, innovation, proactiveness, risk taking, configurations, entrepreneurial management, performance

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1. GENERAL INTRODUCTION

1.1. INTRODUCTION

Thirty years of research have contributed to establish and develop knowledge on firm-level entrepreneurship; like a tree it appears to be deeply rooted, having a sturdy trunk, and a well-balanced crown. The roots of this tree are varied, but one has had more influence than the others: the 1983 work of Danny Miller (Miller, 1983) establishing the dimensions of innovation, risk-taking, and proactiveness as a dependent variable: "entrepreneurship". The trunk is in fact wide and strong: scholarly interest in the field has developed strongly and constantly in three decades (Covin & Lumpkin, 2011; Miller, 2011). But from afar we perceive that the crown of the tree is poorly balanced: we notice that one branch has taken the sieve to the detriment of others. The study of firm-level entrepreneurship has flourished mainly around the construct of entrepreneurial orientation (EO), and in particular its relationship to performance (George & Marino, 2011). This dissertation demonstrates that there are actually four different conceptualizations behind the term "entrepreneurial orientation" (three other branches), and that the initial works of Danny Miller, unheard or misunderstood, have yet to grow: nurturing this bud is my task.

This thesis is a collection of four articles which contribute to a better comprehension of the phenomenon of firm-level entrepreneurship, and open new paths of research. I examine in detail the entrepreneurial orientation (EO) construct, main lens used to understand and assess it. In my first article I compare EO to Entrepreneurial Management (EM) (Stevenson & Gumpert, 1985; Stevenson & Jarrillo-Mossi, 1986, 1990), a 'mode of management' conceptually close to EO. The contribution of this article is to establish that EO and EM, although conceptually close, are not analogous. If EO is meant to represent the (p. 136) "methods, practices, and decision-making styles" (Lumpkin & Dess, 1996), it does not represent organizational factors inducing firm level entrepreneurship, even less a 'mode of management'. In the second, I examine the different models of firm level entrepreneurship which integrate or build upon EO (Miller's entrepreneurship variable). This comparison demonstrates that the main models are actually embedded in different paradigms of entrepreneurship, and therefore do not contribute to a homogeneous, cumulative body of knowledge. Third, I operate a critical analysis of the EO construct: its theoretical, conceptual, and empirical issues. From one, EO becomes several: we find that there are at least four conceptualizations behind the term EO. I use the initial construct created by Danny Miller in 1983 to follow in his footsteps: in my fourth article I offer a taxonomy of firms according to their EO and characterize each cluster according to the personality of the top manager, size, age, structure, environment, and culture. The main contribution of these articles taken together is to demonstrate that there are several conceptualizations of EO, and bring empirical evidence of two of them.

In this introductory chapter, I begin by discussing factors which help explain why firm-level entrepreneurship has come to attract so much scholarly attention and dress the landscape of the different approaches to the study of the phenomenon (section 2), I go on to present the core construct of this dissertation: entrepreneurial orientation (section 3), and conclude by situating the dissertation (section 4).

1.2.ENTREPRENEURSHIP IN ESTABLISHED ORGANIZATIONS : THE GENESIS OF A FIELD

In this first section I set the landscape of researching entrepreneurship in established organizations: mapping the initiatives and specificities. In fact, until the 1980's, entrepreneurship related to the individual activity of new venture creation: the management of the activity of the established organization belonged in the realm of strategic management. The increasing competitiveness of firms from Southeast Asia compared to the large and slow moving mammoths in the North American economy (Peters & Waterman, 1982) raised the concerns of practitioners, scholars, and policy-makers: how can large firms re-become entrepreneurial? At this point in time, research was mainly phenomenon –based; hereafter I present the main studies and the angle under which each studied the phenomenon (a synthesis figures in table 1).

We see the term for the first time in an *Administrative Science Quarterly* in an article by Peterson and Berger (Peterson & Berger, 1971). "Entrepreneurship in Organizations: Evidence form the Popular Music Industry". The study aims at identifying the conditions in which entrepreneurship will emerge and the organizational strategies adopted to contain its disruptive organizational effects, in the popular music industry. It indicates that a firm will behave more entrepreneurially in turbulent environments than in stable ones, and this behavior can result from actions of individuals inside the organization: "Persons with the psychology and motivation necessary for entrepreneurship must be in the strategically appropriate locations." (p.98). The entrepreneur may feel entrenched by the organization and the organization may find the entrepreneur disruptive; three ways to mitigate these tensions were identified: 1) The organization is loosely knit and the entrepreneur can navigate in the slack, 2) the organization, often in conjunction with others, may seek to reduce the environmental turbulence (e.g. oligopoly creation), and finally large organizations can adapt to the exigencies of entrepreneurship. The strategies for large firms to adapt, as witnessed in the music industry, are 1) to separate the unit that interacts with the turbulent environment from the rest of the organization; 2) within this unit the entrepreneurship should be confined to one role; and 3) financial risks of entrepreneurship should be minimized through the multiplication of entrepreneurs and the number of decisions made by each, limiting financial engagements of each decision, an efficient feedback loop and the possibility to reward or sanction the entrepreneur according to his/her results. Here Peterson and Berger study the phenomenon of firm-level entrepreneurship by examining the structural devices and strategies enabling it.

But the field opens wide with Danny Miller's 1983 (Miller, 1983) piece in *Management Science* "The Correlates of Entrepreneurship in Three Types of Firms". The important contributions of this piece are 1) to establish that *firms* can behave entrepreneurially (here, he adopted innovation, risk-taking, and proactiveness as a composite variable "entrepreneurship"); and that entrepreneurship can be performed by the traditional entrepreneur, but or/also by a planning or ventures department, or at lower levels of the organization (e.g. R&D, engineering, or production); 2) that *process* of entrepreneurship itself and the organizational factors which foster and impede it vary according to context; and 3) he finds that in simple firms entrepreneurship is determined by the characteristics of the leader, in planning firms by the explicitness and integration of strategy, in organic firms by the adaptation of the structure to the strategy. Moreover, it is here very clear that the object under study is entrepreneurship at the firm level: a phenomenon that adds up to something bigger than the sum of individual initiatives. It is important to understand that Miller's intention *was not* to set a definition of firm level entrepreneurship, but to identify the means to achieve firm-level entrepreneurial behavior, identified *ad hoc* as innovation, risk-taking, and proactiveness.

Burgelman's article "Corporate Entrepreneurship and Strategic Management: Insights from a Process Study", was published in *Management Science* in 1983 (Burgelman, 1983a). Definitely rooted in the strategic management literature, he identifies and explicates two types of *individual* strategic behaviors. Induced strategic behaviors fit into the existing categories of the organization and fit into familiar external environments; the structural context aims at keeping strategic behavior at operational levels in line with the current concept of strategy. Induced strategic behaviors can lead to incremental innovations. Autonomous strategic behaviors fall outside of the organization's current concept of strategy, and p. 1350 "As such, autonomous strategic behavior is conceptually equivalent to entrepreneurial activity—generating *new* combinations of productive resources in the firm. It provides the basis for radical innovation from the perspective of the firm." Managing the tensions between the external origins of autonomous strategic behavior and the structural context is done through strategic context: political mechanisms through which middle managers question the current concept of strategy, and provide top management with the opportunity to rationalize, retroactively, successful autonomous strategic behavior. Autonomous strategic behaviors belong to an organizational type of entrepreneurship (as opposed to "entrepreneurship") because they are embedded in the organization, mobilizing context specific knowledge and resources – if these resources and knowledge were not embedded, the resulting activity should be spun off. In the current discussion, the main contributions of this essay are at least three: 1) it sheds light upon the *individual* behaviors of CE; 2) the process approach captures the "the vicious circles, paradoxes, dilemmas, and creative tensions encountered by entrepreneurial activities in organizations" (p. 1353); and 3) conceptual integration of the "management/ bureaucratic" (induced strategic behaviors) and "entrepreneurship" (autonomous strategic behaviors) literatures. Autonomous strategic behaviors should not be encouraged, according to Burgelman, because this would induce opportunistic behaviors. Here, the focus adopted is the behavior of the individual inside the organization.

Gifford Pinchot III coined the term *intrapreneurship* (Pinchot III, 1985) for intra-corporate entrepreneurship. He adopts a more individual perspective, in that the intrapreneur acts entrepreneurially in response to organizational inertia, brought on by size, bureaucracy, or strategic near-sightedness. This framework encourages people – employees, middle managers – to take the law into their own hands and work against the existing rules of the organization to bring about change and innovation. This resonated well with the American audience, romanticizing self-initiative (“circumvent any orders aimed at stopping your dream”), risk-taking (“come to work each day willing to be fired”), internal locus of control (“never bet on a race unless you are running in it”), and individualism (“work underground as long as you can – publicity triggers the corporate immune system”). The phenomenon is examined under the light of “individual *versus* the organization”.

Rosabeth Moss Kanter and a team of Harvard researchers adopted the multiple case study methodology, observing eight different companies that tried to recreate themselves; these studies (“Engines of Progress”) were published in the Journal of Business Venturing (R. Kanter, 1985). She relates, study after study, how these firms organized for CE activities through entrepreneurial vehicles, programs conceived and maintained to induce value creation through new ideas. These attempts to diversify can respond to financial (performance) goals or to cultural ones (greater room for employee participation). They are dynamic and evolve over time, according to the strategy of the parent company, but also results and experience acquired during their initiation and development or the external environment. Through these studies she identified four generic types of vehicles: the *pure venture capital* model (Analog Devices Enterprises, (R. M. Kanter, North, Bernstein, & Williamson, 1990), where the parent company invests in external ventures; the new *venture development incubator* (Eastman Kodak’s New Opportunity Development : (R. M. Kanter, Richardson, North, & Morgan, 1991), where new ventures are managed as independent entities, either internally or externally; the *idea creation and transfer center* (Raytheon’s New Product Center, (R. M. Kanter, North, Richardson, Ingols, & Zolner, 1991)), which develops new activities and then passes them on to established operations to exploit; and the *employee project* model (Ohio Bell Enter-Prize (R. M. Kanter & Richardson, 1991)), an entrepreneurial variant of employee involvement or suggestion boxes. The focus of these studies is managing the tensions between the 'mainstream' and the 'newstream'.She underscores that even with such devices, the paradox remains: the greater the distance between the mainstream and new activities, the more likely tensions between them will lead the parent firm to cease supporting the new activity: thus, these vehicles can at best support incremental innovation. This rich body of literature is close to action, the methodology chosen gives a vivid description of the context (why undertake CV activities? How did they organize them? How did they manage the tensions between the mainstream and the newstream?).

Ian MacMillan and his colleagues studied corporate venturing activities, focusing their efforts on understanding the criteria which leads corporate venture capital initiatives to success. They identify (MacMillan, Block, & Narashima, 1986) that success is more likely when the joint venture form is privileged (reducing risk and accelerating knowledge acquisition) and when the experience from unsuccessful ventures is maintained in the organization and reused in other venturing projects. They also note that traditional planning tools are inefficient in venturing contexts, and suggest for example: starting small (several small ventures to acquire knowledge), reduce expectations (aim for learning benefits as well as moderate financial ones), measure progress (e.g. milestones), specific evaluation and compensation of venturing executives, and manage the learning process. MacMillan and Day (MacMillan & Day, 1987) focus on the style of entry into the market, to find that relative aggressiveness in market entry (high share objectives) can lead to higher downstream share objectives and to higher financial performance. The experience effect mentioned above for corporate venturing activities was also noticed in corporate venture capital: (Siegal, Siegal, & MacMillan, 1988). They also find that CVCs which remain close to the firm (management style, compensation, decision-making activities) are less successful than those who are more independent.

Guth and Ginsberg (Guth & Ginsberg, 1990), in their Guest Editor's Introduction to a special issue of *Strategic Management Journal* specifically labeled "Corporate Entrepreneurship" (CE). These authors note that despite the growing interest in CE, there is no consensus on what it is. Based on this diversified literature, they offer a double definition. Corporate venturing / innovation relates to activities of new business development within an existing firm, whereas strategic renewal involves the creation of new wealth through new combinations of resources (e.g. refocusing a business, major changes in marketing or distribution, redirecting product development, or reshaping operations). It is important to underscore that this double definition considers the outcomes of CE, innovation, new business creation, refocusing a business or reengineering operations; with this type of definition we have adopted a focus inducing a selection bias because we study only the accomplished phenomenon.

Table 1: Main contributions of the early literature

Author(s)	Main works	Metho-dology	Focus	Contribution
Peterson& Berger	"Entrepreneurship in Organizations: Evidence form the Popular Music Industry", Peterson & Berger, 1971	Qualitative	Organizational structure	Entrepreneurship should not be equated to individuals, firms can also make a novel use of means of production
Miller	"The Correlates of Entrepreneurship in Three Types of Firms", Miller, 1983	Quantitative	Firm level entrepreneurial behavior	The means to achieve firm-level entrepreneurship (entrepreneurial processes) vary by context, here firm type.
Burgelman	"Corporate	Qualitative	Individual	The firm is a source of

	Entrepreneurship and Strategic Management: Insights from a Process Study", Burgelman, 1983		entrepreneurial behavior in an organizational setting	opportunity for its members.
Pinchot	"Intra-Corporate Entrepreneurship", fall 1978, "Why You Don't Have to Leave the Corporation to Become an Entrepreneur", Harper & Row, 1985	Qualitative	The individual vs the organization	
Rosabeth Moss Kanter	"Engines of Progress" case studies in JBV	Qualitative	Corporate venturing activities	Four generic types of entrepreneurial vehicles; structure and management matter
Ian MacMillan		Quantitative	Corporate venture capitalists	Experience effect, specific planning tools for CVCs needed
Guth & Ginsberg	"Guest Editor's Introduction", 1990	Qualitative	Definition of CE	CE aims at either corporate venturing/innovation or strategic renewal

As mentioned previously, this research was phenomenon-based; these different authors adopting different viewpoints to understand the phenomenon. Of these seven angles, one has attracted much more scholarly interest than the others: Miller's 1983 article which was used as foundation for entrepreneurial orientation.

1.3. ENTREPRENEURIAL ORIENTATION: CONCEPTUAL ISSUES, ASSIMILATIONS, DEFINITIONS AND LEVEL OF ANALYSIS

In this section I will demonstrate that the scientific community has yet to decide what the concept(s) of EO actually behold(s), and that despite (or thanks to) this it has been assimilated to or integrated into other frameworks.

1.3.1. Concept or concepts?

Danny Miller's seminal article of 1983 gave involuntarily birth to what will later become "EO". His approach was novel in that it conceived that entrepreneurship could be a firm-level phenomenon, and not solely the action of the individual entrepreneur in the context of new venture creation. For Miller, entrepreneurial processes in established organizations differed according to the type of firm; he found that in simple firms the personality and knowledge of the top manager was conducive to entrepreneurship; in planning firms the strategic intent was determinant, and the fit structure - environment was determinant in organic firms. To assess this, he positioned the variable "entrepreneurship" as an aggregate average of the dimensions innovation, proactiveness, and risk taking, dimensions which will become "EO".

With this piece of research, Miller's intent was to *open* the debate on firm-level entrepreneurship. In this piece and in following works, he stressed the importance of understanding the phenomenon in context – here entrepreneurship by type of firm based on Mintzberg's (Mintzberg, 1973) typology, elsewhere by underscoring the interest and importance of configurational research: identifying typologies (based on theory) or taxonomies (empirically established) groups of firms to better understand underlying mechanisms and common antecedents to a homogeneous group of organizations.

This aggregate variable was adopted, by Covin and Slevin (Covin & Slevin, 1989), and positioned as independent variable, "performance being the ultimate dependent variable" for firms which demonstrate an entrepreneurial strategic posture (Covin & Slevin, 1991). Covin and Wales (2012:690) have since admitted that this turn in research was a "theoretical compromise": using the Miller / Covin Slevin scales and assuming EO unidimensionality "precludes capturing gestalts that may form among EO's sub dimensions".

Further studies seeking to establish scale validation (Kreiser, Marino, & Weaver, 2002) find that the three dimensions need not co-vary. These authors (Kreiser & Davis, 2010; Kreiser, Marino, Dickson, & Weaver, 2010) embrace yet another conceptualization of EO.

The term "entrepreneurial orientation" was coined in the 1996 Lumpkin and Dess (Lumpkin & Dess, 1996) conceptual piece. These authors added competitive aggressiveness and autonomy to the previous three dimensions of firm- level entrepreneurship and admitted that these dimensions may vary independently. Factors internal or external to the firm may mediate or and moderate the relationship EO – performance.

Table 2: conceptualizations under the "EO" banner

Conceptualization	Dimensions	Co-variance?	Genre
Miller, 1983	Innovation, risk-taking, proactiveness	no	"Entrepreneurship" variable created to identify what leads to it
Covin & Slevin, 1993	Innovation, risk-taking, proactiveness	yes	Strategic posture of a firm
Kreiser and colleagues, 2002, 2010	Innovation, risk-taking, proactiveness	no	Strategic decision-making process
Lumpkin & Dess, 1996	Innovation, risk-taking, proactiveness, competitive aggressiveness, autonomy	no	Processes, practices, and decision-making activities that lead to new entry, and ultimately performance

Several efforts to shed light upon this body of literature adopt a historical approach (Basso, Fayolle, & Bouchard, 2009; Edmond & Wiklund, 2010). In a retrospection effort, Covin and Lumpkin (Covin & Lumpkin, 2011) come to the conclusion that there is not one, but two conceptualizations of EO: the unidemensional and the multidimensional, and that one is not better than the other *a priori*. We find that there are actually four conceptualizations behind the term EO: none are inherently better than the others, but each deserves to be researched.

1.3.2. Assimilations and integrations

Entrepreneurial orientation has been assimilated to entrepreneurial management (Lumpkin & Dess, 1996) as it represents the firm's decision-making processes. As I previously mentioned, according to the conceptualization embraced, in a general manner EO is a three to five dimensional construct that depicts firm level entrepreneurial behavior. Entrepreneurial management (EM) was expressly conceived as a 'mode of management' (Stevenson & Gumpert, 1985; Stevenson & Jarrillo-Mossi, 1986, 1990). Comprised of six dimensions: strategic orientation, commitment to opportunity, commitment of resources, control of resources, management structure and reward system, this conceptualization is embedded in the definition of entrepreneurship as "a process by which individuals – either on their own or within organizations – pursue opportunities without regard to the resources they currently control" (p. 23).

The three dimensions of Miller's EO have also been integrated into several models of firm-level entrepreneurial behavior: Covin and Slevin's entrepreneurial posture (Covin & Slevin, 1991), Lumpkin and Dess's EO (Lumpkin & Dess, 1996), and Ireland et al.'s corporate entrepreneurship strategy (Ireland, Covin, & Kuratko, 2009). In my second article I operate a comparison of these models, and demonstrate that they are embedded in different paradigms of entrepreneurship, embracing different assumptions and suffering from different biases: the resulting knowledge is not commensurable – these models are very different one another; they cannot build upon each other to become one – or even two - conceptualizations.

1.3.3. Definitional and level of analysis issues

The heart of this dissertation is the identification of firm-level entrepreneurial behavior, and the organizational end environmental factors that lead to it. Hereafter I will use as synonyms "firm level entrepreneurship", "organizational entrepreneurship", and "corporate entrepreneurship" to refer to this phenomenon.

The term EO is used first to make reference to the construct coined by Lumpkin and Dess, these authors using the works of Miller and Covin and Slevin as foundations to this construct (in article 1). In article 2, I prefer the term "model of organizational entrepreneurship" which enables to differentiate the different "EO"s. In my third article I refer to each conceptualization by the name of its author.

The level of analysis I embrace is indeed the firm level. My empirical contribution is first the identification of configurations of firms according to their gestalt of EO: I bring empirical support to both the unidemensional and multidimensional conceptualizations. I go on to identify the main characteristics of each group of firms and its type and level of performance. It is through the selection of the characterizing variables that we will have a peek at the some other levels of analysis possible: the personality of the top manager, organizational structure and culture.

1.4. SITUATING THE DISSERTATION

This thesis is in fact a succession of research questions that paved my doctoral studies. Initially attracted to Stevenson's Entrepreneurial Management, I was genuinely surprised to see it assimilated to EO. This led me to the first article, where I compare these two concepts. During this first research, I was intrigued first by the differences in strategic intent and the impact of the definition of entrepreneurship in which each was rooted. The multiple models of firm-level entrepreneurial behavior which integrated EO also raised my concern. What are the differences between these models? Are the models truly different? What roles do strategy and entrepreneurship play in each? In the second article of this thesis I examine the different models of firm-level entrepreneurship which integrate or build upon EO.

As I progressed in my endeavors, I came to understand that what was commonly accepted as a relatively robust concept and resulting body of knowledge actually was not, and that the essence of Danny Miller's 1983 work had gone unheard or misunderstood. In my third article I offer a critical analysis of EO, identifying theoretical, conceptual, and empirical issues. I would like to thank Danny Miller once again for bringing answers to the questions we asked about entrepreneurial orientation.

From one, EO becomes several: we find that there are at least four conceptualizations of EO, including Danny Miller's initial intent. I use this initial construct created by Danny Miller in 1983 to follow in his footsteps: I offer a taxonomy of firms according to their EO and characterize each cluster according to the personality of the top manager, size, age, structure, environment, and culture in my final article.

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Entrepreneurial Orientation and Entrepreneurial Management: same, different, or both?

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Abstract

Is Entrepreneurial Management (Stevenson, 1983; Stevenson & Gumpert, 1985; Stevenson & Harmeling, 1990; Stevenson & Jarrillo-Mossi, 1986, 1990) analogous to Entrepreneurial Orientation (Lumpkin & Dess, 1996) concept widely used to measure the entrepreneurial intensity of an organization ? These two concepts are distinct, although they both lead to organizational entrepreneurship (Brown, Davidsson, & Wiklund, 2001). We then operate a comparative study of the models of organizational entrepreneurship that are based on or integrate entrepreneurial orientation (EO), to answer the question: can the dimensions of Entrepreneurial Management (EM) be considered as organizational factors affecting an organization's EO? This research can feed the debate of the re-examination of the operationalization of EO. Such knowledge would allow practitioners to identify the mechanisms and processes that determine the entrepreneurial propensity of an organization.

Key Words

Entrepreneurial Management, Entrepreneurial Orientation, organizational entrepreneurship, management system inducing organizational entrepreneurship

Entrepreneurial Management, a ‘mode of management’ conceptualized by Stevenson (1983) and his colleagues (Stevenson, 1983; Stevenson & Gumpert, 1985; Stevenson & Jarrillo-Mossi, 1986, 1990) leans upon the definition of entrepreneurship as the pursuit of opportunity regardless of resources. Opportunity pursuit is the trigger, connecting Stevenson’s work to those of the Austrian school (Kirzner, 1973; Schumpeter, 1934). For Stevenson, an entrepreneurial opportunity is a future state deemed desirable and achievable; managing the tension that exists between the individual’s natural tendency to pursue opportunities and the interest of the firm (what can be an opportunity for the firm) is the essence of entrepreneurial management (EM). In fact, if “entrepreneurship is a process by which individuals—either on their own or inside organizations—pursue opportunities without regard to the resources they currently control” (Stevenson & Jarrillo-Mossi, 1990) (p.23). ME suggests that opportunity pursuit cannot be induced by top management through traditional managerial mechanisms, in particular planning and control.

This conception of entrepreneurship contrasts with that of the dominant stream of organizational entrepreneurship, which adopts the result (new entry) – a new product, a new market – to qualify entrepreneurship (Lumpkin & Dess, 1996). In focusing on the means instead of the result, we widen the lens with which we decode the mechanisms and processes which can enable the firm to stay or re-become entrepreneurial. A deeper comprehension of these mechanisms and processes is particularly important since the current economic crisis has confirmed that there are no longer any truly stable environments.

A second distinction relates to the model itself: whereas the dominant model adopts opposing types, Stevenson places the ‘entrepreneurial’ organization and the ‘bureaucratic organization’ on two polar ends of a continuum, which offers a more nuanced, qualitative perspective. The totally entrepreneurial firm, like the totally bureaucratic firm does not exist: we can call upon the model in a relative or partial manner, meaning calling upon the mechanisms or processes identified as pertinent according to the context to improve the firm's entrepreneurial intensity.

Finally, the mainstream is looking for a mode, a typology, which indicates a sure path to firm performance through a structure- environment fit. The entrepreneurial orientation (EO) concept originates in Danny Miller's 1983 article, in which the author demonstrates that in the simple firm (according to Mintzberg's typology: (Mintzberg, 1973)) it is the top manager's personality that is leads to firm level entrepreneurship; in the bureaucratic organization it is planning that counts, and in the organic firm it is necessary to adjust the organization structure to the environment. To establish firm-level entrepreneurship, Miller conceived a scale including innovation, proactiveness, and risk-taking as dependent variable.

The EO concept, as well as the dimensions which characterize it, have been developed by Covin and Slevin (Covin & Slevin, 1989, 1991), Lumpkin and Dess (1996), (Shaker A. Zahra, 1993a), and (Shaker A. Zahra & Covin, 1995). It has also been integrated into several attempts to model the entrepreneurial firm (Covin & Slevin, 1991; Ireland, et al., 2009; Lumpkin & Dess, 1996; Shaker A. Zahra, 1993a). If the concept and the scale are still references today (e.g . (Stam & Elfring, 2008), (Basso, et al., 2009) (p.190) underscore that the concept and the dimensions have been altered and recommend using the scales developed by Miller/Covin & Slevin, and used by Brown et al (2001). Recent empirical results (Lumpkin, Cogliser, & Schneider, 2009) conclude that there is a problem with the EO construct, scales, or both.

In research published in the French language, “Entrepreneurial Management” has another meaning. For example, (Hebbar, 2005) founds “entrepreneurial management” upon human resources: strategic objectives, interactions, and engagements. Messeghem demonstrates that a firm who has a “managerial logic”, characterized by a greater standardization, formalization, and specialization” can also show a high level of entrepreneurial intensity (Messeghem, 2003) (p. 36).

In a first section we will present the concepts of entrepreneurial orientation and entrepreneurial management, and in a second we will analyze a series of correspondences between them.

1. Entrepreneurial Management and Entrepreneurial Orientation: a first approach

Is the assimilation EM – EO by Lumpkin and Dess (1996:23) founded? To answer this question, we should first better comprehend the nature and understanding of the two notions.

1.1 Entrepreneurial Management

Stevenson and colleagues qualified EM as a « mode of management » comprising six dimensions: strategic orientation, commitment to seize opportunities, commitment of resources, control of resources, management structure, and reward systems. They set a continuum on which they place on one end the entrepreneurial or “promoter” firm, and on the other the trustee or bureaucratic firm which is focused on the efficient use of resources owned by the firm. Individual and collective attitudes and actions are of interest here, but we can also believe that management can encourage these attitudes and actions.

Strategic orientation reflects strategy creation (Stevenson & Gumpert, 1985). The trustee firm will endeavor to efficiently use the resources it owns. The promoter organization will actively seek opportunities, new resource combinations, to create value. These new opportunities are pursued by individuals who act within the organization, independently of resources controlled. In promoter firms, resources are allocated in stages to limit risks, whereas in trustee firms, resource allocation is done in one shot, after long and rigorous controls.

The promoter firm, according to Stevenson, uses the human and financial capital, the knowledge and resources regardless of where they come from, whereas the bureaucratic firm targets owning these resources in order to control them. The first grants greater importance to accessing the resources to use or exploit them than owning them. Action, commitment, and reversibility characterize the notion of opportunity pursuit. The trustee firm will decide to commit or not after a long and detailed analysis, entailing several steps and negotiation strategies; the promoter will be quick to commit and to de-commit. Using resources it does not own, the organic firm structure is the most adapted to the promoter type. The resulting reward system aims at inducing independence and responsibility rather than seniority or efficient use of controlled resources; (Burgelman, 1983a), like Stevenson and his colleagues, see the firm as an opportunity structure for its members.

1.2. Entrepreneurial Orientation

EO is a cross-sectional measure of entrepreneurial intensity, based on two, three, or five dimensions. In fact, when Miller asked: what makes a firm entrepreneurial? His first elements of response were: “one that engages in product-market innovation, undertakes somewhat risky ventures, and is *first* to come up with "proactive" innovations, beating competitors to the punch” (Miller, 1983:771). For Miller, it is more important to understand the processes and organizational factors that inhibit or promote entrepreneurship that to know who is at the origin of the initiative. Here, EO is a multidimensional concept which targets the organizational actions relating to product/market and technological innovations, risk-taking and proactiveness, where the arithmetic average is the aggregate “entrepreneurship” variable.

Two dimensions were added by Lumpkin and Dess (1996). Autonomy (Lumpkin, Dess, 1996: 140) is the characteristic of an individual or team. Autonomy cannot be impeded by factors such as resource ability, actions by competitive rivals, or internal organizational considerations would not sufficient to impede the autonomy of the individual or group. It cannot be fostered by changes in organizational structure, such as flattening hierarchies and delegating authority. Burgelman’s (1983) distinction between autonomous and induced strategic behaviors is of interest here, as it demonstrates the importance of the strategic context, which “refers to the political mechanisms through which middle managers question the current concept of strategy, and provide top management with the opportunity to rationalize, retroactively, successful autonomous strategic behavior” (Burgelman, 1983:1352). We note here yet another distinction between EO and EM: the first is content to measure autonomy, whereas the second aims at better understand what the strategic context is. The fifth dimension, competitive aggressiveness (Lumpkin, Dess, 1996: 148), translates initiative, the will get ahead of the competition by all means. The pertinence as well as the operationalization of these two additional dimensions have been subject to criticism (Basso et al, 2009).

Like Burgelman (1983) we think that academic interest should focus above all upon dynamic processes. If the autonomous strategic behavior cannot be planned, its development should net be inhibited.

2. Correspondences between EO and EM

The EO construct has been incorporated in several attempts to model organizational entrepreneurship (Covin, Slevin, 1991; Zahra, 1993; Lumpkin, Dess, 1996; Ireland et al., 2009). We have excluded from this study the tool elaborated by Hornsby and his colleagues (Hornsby, Kuratko, Shepherd, & Bott, 2009; Hornsby, Kuratko, & Zahra, 2002), because this device aims at measuring the perception managers have of the organizational environment favoring entrepreneurship. Here we offer a comparative analysis of the dimensions of EM with the main models of organizational entrepreneurship based on or including EO, first in its strategic dimensions, then in its support dimensions (Randerson & Fayolle, 2010a).

2.1. Comparative analysis EM / EO in a strategic perspective

Brown et al (2001) added « growth orientation » to the initial dimensions of EM. According to Stevenson and his colleagues, growth is a necessary evil because it carries the seed that will destroy what made the firm's success. We find this dimension in the models examined: either by reference to firm size (Miller, 1983; Lumpkin, Dess 1996) or to a growth strategy (Covin, Slevin, 1991 :13 ; Ireland et al., 2009:21). Zahra (1993) has a more nuanced approach: "Some of the very best managerial actions and innovations do not yield measurable financial performance but they define the firm and give meaning to its different activities" (Zahra, 1993:12). We think that the dimensions "growth strategy" has been over developed compared to the initial conceptualization, and that, as (Steffens, Davidsson, & Fitzsimmons, 2009) demonstrate, there is no proven systematic relationship between growth and performance. The perspective of the researcher and the practitioner need to adapt to context, and it is precisely through EM that this contextualization can be attained.

Strategic intent is present in EM in the « strategic orientation » dimension, which reflects strategy formation according to opportunities and not resources (Stevenson & Gumpert, 1985: 89). The bureaucratic organization conceives its strategy based on the efficient utilization of the resources it owns, in the perspective of optimization. The members of the entrepreneurial firm identify new resource combinations, even if they do not belong to the firm. Stevenson recommends structuring jobs in order to facilitate opportunity recognition, as well as maintaining a balance between functions and institutionalizing change to instill the desire to try. A strong involvement of members of the organization in the planning process (i.e. 'deep locus of planning', according to (Barringer & Bluedorn, 1999), inducing a strong entrepreneurial intensity, because it facilitates opportunity identification and diversity of viewpoints. This dimension appears in the different models examined in the form of decision-making variables (Miller & Friesen, 1982), characteristics of strategy elaboration according to the type of organization (Miller, 1983), or 'mission strategy' (Covin, Slevin, 1991). If EO is void of strategic intent (Ireland et al., 2009), this intention is present in most of the models, and in EM which privileges an entrepreneurial strategic vision.

The dimension « control of resources » of EM posits that the opportunity is pursued regardless of the resources controlled. Thus, resource control is foreign to the strategy of the promoter firm, which can use the financial, human or technical capital belonging to others. Operationally, the resulting mode of management promotes the utilization or exploitation of resources to create value. Miller and Friesen (1982) included the variable « available resources » among the variables related to firm structure. They found a negative correlation between innovation and resource availability. Other relationships should be studied: the perceived need (i.e. resource scarcity) seems to contribute to firm growth more than ability or opportunity (Davidsson, 1991). This dimension is absent from the models included in the scope of this comparison and constitutes, in our opinion, the specificity of EM because "the essence of entrepreneurship is the willingness to pursue opportunity, regardless of the resources under control. It is typical of the entrepreneur 'to find a way'" (Stevenson & Jarillo, 1990:23). It is precisely the absence of resources which characterizes entrepreneurship, in the individual or organizational setting.

This strategy should not remain an intention: "commitment to opportunity" relates to action and commitment. This concept is present in the strategic management literature as 'planning flexibility' (Barringer, Bluedorn, 1999). Miller (1983) leans upon the characteristics of the organic structure. For Stevenson, entrepreneurship is defined as a process; processes figure in the models of firm-level entrepreneurship we currently compare as "organizational competences" (Covin, Slevin, 1991), "processes" (Zahra, 1993), or "entrepreneurial processes" (Ireland et al, 2009). For the latter, "Entrepreneurial strategic visions are realized when entrepreneurial processes of opportunity recognition and exploitation take place throughout a firm. These processes are enacted by the organization’s membership through many specific entrepreneurial behaviors” (Ireland et al., 2009:33).

2.2. Comparative analysis EM / EO in an organizational perspective

Zahra’s call for fairness (Zahra, 1993) can be satisfied through the dimension « commitment of resources » of EM. The progressive commitment of resources enables learning, because we often learn more from our errors than from our successes. Sharing resources prevents the formation of clans. We find this dimension in Covin and Slevin’s model, as ‘competitive tactics and business practices. The model by Ireland et al (2009) differentiates resources (what the organization has) from capacities (a combination of resources enabling task accomplishment), and gives a particular value to decisions and actions of the top management team that reflect their strategic vision.

An entrepreneurial firm uses resources it does not own. The “structure” the most appropriate would be the organic one, which enable the coordination of these resources. In extant research, this dimension appears under the form of “structural variables” (Miller & Friesen, 1982), Mintzberg’s typology (1973) used by Miller (1983) and the organization structure in Covin and Slevin’s 1991 model as well as Ireland’s 2009 model. These authors idealize the organic structure. Zahra (1993:11) warns against the need for participation and the organic structure. The adhocratic structure can also be a vector for EM. (Hernandez, 2008) suggests viewing entrepreneurship as organizational emergence; this can contribute to the understanding of EM.

(Pichault & Nizet, 2000) conceptualized HRM systems associated with Mintzberg's organizational forms. Can we see here the HRM aspect of EM? Is the objectivizing model at the trustee end of the continuum? Which model, arbitrary or individualizing, would be on the promoter end?

Should intrapreneurship be isolated in one part of the organization? The intrapreneur id identifiable by his/her behavior and can evolve in an enclave or anywhere in the organization (Basso, 2006). In the first case, the enclave is governed according to particular organizational modalities which favor intrapreneurship; in the second managing the intrapreneur is incumbent upon the intrapreneur's direct manager. Bouchard (Bouchard, 2009) offers tools to analyze the intrapreneurial context, intended for intrapreneurs and managers wishing to instill intrapreneurship. (Hatchuel, Garrel, Masson, & Weil, 2009) point out tha intrapreneurship may not be a competency, but the translation of an inadequation of the firm's current management principles. (Carrier, 1994, 1996) carried out a study comparing intrapreneurship in large firms and in SMEs. The characteristic of EM is to offer an organization-wide mode of management, which enables any member of the firm to pursue an opportunity.

That the top management accepts that ideas come from "below" is specific to EM (Stevenson & Jarillo,1990:24). The opportunity being by definition beyond the current activities of the firm, it is uneasy to "force" this pursuit through the usual managerial mechanisms. The "reward system" should, first, re-compensate the added value brought to the organization, and not the hierarchical position or the control of resources. Second, it is important to reduce obstacles to entrepreneurship, namely by minimizing the consequences of an eventual failure. This dimension appears some of the models (Covin & Slevin, 1991; Zahra, 1993). For Ireland et al (2009), it is the strategic vision of the top management which leads them to conceive a reward system encouraging entrepreneurial behaviors. For Stevenson and his colleagues, these rewards can be monetary or symbolic.

Brown et al (2001) described the « entrepreneurial culture » as one which encourages ideas, experimentation and creativity in relation to opportunity. We believe that an entrepreneurial culture boils down to a positive synergy between idea detection, the will to pursue, and faith in success; A dimension "culture" figures in the Covin and Slevin model (1991), and appears in all of the models included in this comparison. This relationship is reciprocal: a strong EO influences the organization's culture. Zahra, (1993:10) offers a critical perspective and invites us to consider an alternative classification, perhaps more parsimonious, of the variables which can influence the entrepreneurial posture.

These developments lead us to suggest that EM can be perceived as organizational factors affecting EO. None the less, we cannot reduce it to a typology, nor to a system of HRM. It would be of great interest to develop a body of knowledge of these factors and their interrelations. Such a study should comprise the dimensions of EO, the dimensions of EM, and the different models of firm-level entrepreneurship. This would shed light upon how each of the concepts and their respective dimensions contribute to the firm's entrepreneurial activity and intensity.

3. Discussion and conclusion

In this work we have endeavored to establish a link between two key concepts of firm-level entrepreneurship: entrepreneurial orientation and entrepreneurial management. We have demonstrated that if these two concepts lead us to understand entrepreneurial intensity of established organizations, they are not analogous. ME, developed under a process definition of entrepreneurship, leads us to examine opportunity identification and pursuit when the needed resources do not (necessarily) belong to the subject. This postulate has strategic consequences: the entrepreneur, individual or organizational, does not content to maximize return on resources. It also has operational consequences: the entrepreneur will need to initiate processes to marshal the needed resources. EO marks the difference between the process (EO) and entrepreneurship (new entry). EO translates behaviors of innovation, risk-taking and proactivity, whereas EM translates behaviors of opportunity identification and pursuit. If, in EO, the '*locus of entrepreneurship'* is undetermined, Stevenson and his colleagues endow the burden of the entrepreneurial initiative upon the shoulders of the individual, if he/she acts alone or for the organization to which he/she belongs. The conclusion of this comparison is that these concepts are distinct. We have none the less identified some similarities, in particular between the dimensions of EO and the different models of firm-level entrepreneurship based on or including EO.

These similarities and relationships justify further research which could allow a deeper understanding of EM and to study the possibility of linking it empirically to EO, in particular if certain of its dimensions act as organizational factors which can breed EO. If the presence of these factors in the compared models is stable, we must emphasize that their contents vary. We must also underscore that these models have never been empirically established. Further research needs to be done: comparing these models in their strategic aspects, establishing empirically the existence and contents of these dimensions, identifying the direction of the causal link between

EO and EM, disentangling certain links, in particular the impact of the top manger's personality on the firm's culture, structure, and reward system.

This comparative study of EO and EM is relevant because recent research (Lumpkin et al, 2009) has identified a problem with the construct, the scales usually used to measure it, or both. The research initiated to identify these gaps can fruitfully include EM in the scope of the studies. The paradigm of entrepreneurship of Stevenson and his colleagues is also of interest for itself today: no need to own resources to pursue an opportunity, which leave entrepreneurship open in times of economic crisis and in resources poor in resources.

To conclude, we would like to point out that this contribution is also of interest to practitioners, who can find the means to better identify practices and behaviors which encourage entrepreneurial as well as an operational tool to measure entrepreneurial intensity. Above all, they have access to recommendations when their organizations suffer from insufficient entrepreneurial activity.

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Organisational entrepreneurship[1] : what can we learn from a comparative study of the principal models?

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Abstract: this contribution offers a comparative study of the different models of organizational entrepreneurship. We study these models through different prisms, in order to shed light upon their similarities and differences; in particular in the manner they connect the notions of strategy and of entrepreneurship. This study aims at nourishing the scholarly debate about the entrepreneurial orientation (EO) construct (Lumpkin & Dess, 1996) starting point for several models. As recent results underscore the weakness of the construct and/or of its measure (Lumpkin, et al., 2009), or the mixed results and non-findings of studies based on it (Short, Broberg, Cogliser, & Brigham, 2010) this study is particularly *a propos*.

Key words: corporate entrepreneurship, organizational entrepreneurship, entrepreneurial orientation, entrepreneurial management, strategy

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[1] Organisational entrepreneurship is, in this article, a generic term covering the specific realities of *intrapreneurship*, *corporate venturing*, *corporate entrepreneurship*

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Entrepreneurship and strategic management have maintained a close relationship. The former targeted initially the scholarly study of those that undertook an entrepreneurial venture (Miller, 1983) and of the creation of that venture, whereas strategic management took interest in the management of the venture already created. Today, the field of entrepreneurship covers the study of, among others, the effects of the activity, the specificity of people who engage in it, and the way these people operate (Shane & Venkataraman, 2000; Stevenson & Jarrillo-Mossi, 1990)[3]. If entrepreneurship was long considered a sub-field of strategic management its legitimacy has since developed and progressed (Shane & Venkataraman, 2000), and we are witnessing a substantial and subsequent rise of interest in organizational entrepreneurship (oe): in 1999 Zahra *et al.*, counted 25 studies on the topic, ten years later Cogliser *et al*, (2008) counted over 100. In the French language academic journals, the importance of this topic has been underscored by Hernandez & Marchesnay (2008) and by Basso and Fayolle (2009).The recent effort to model Corporate Entrepreneurship Strategy (CES) by Ireland and al (2009) is an illustration of this close relationship.

This fad encouraged us to take a closer look to better understand the interrelations between strategy and organizational entrepreneurship. Today it is commonly accepted that entrepreneurship can concern exiting organizations (Miller, 1983; Gartner, 1985; Covin & Slevin, 1991; Covin & Slevin 1992; Zahra, 1993; Shane & Venkataraman, 2000; Stevenson & Jarillo, 1990). Several scholars have attempted to model the phenomena in order to better understand it. To delimit the parameter of our study, we have retained particularly the models that have used the

[3] People acting individually or in an organisational setting.

entrepreneurial orientation (Lumpkin & Dess, 1996) construct, that have been assimilated to it, or that have integrated this construct in one way or another[4].

The genesis of the entrepreneurial orientation concept (EO) can be found in D. Miller's 1983 article (Miller, 1983) in which he studies the path to entrepreneurship according to the organizational type. To measure entrepreneurial intensity, Miller created a scale including innovation, proactiveness, and risk-taking. The EO concept and the dimensions characterizing it have been widely used and developed, namely by Covin et Slevin ; Covin et Slevin, 1988; 1989; 1991), Lumpkin et Dess (1996), Zahra (1993), Zahra et Covin (1995). This construct was also integrated into multiple attempts to model EO (Covin & Slevin, 1991; Zahra, 1993; Lumpkin & Dess, 1996; Ireland *et al.,* 2009). Finally, EO has been assimilated to Entrepreneurial Management (Stevenson…) by Lumpkin and Dess (1996). *Our first question is: are these two concepts analogous?*

We also underscore the pertinence of this study, since recent studies have shown the limitations of the EO research. Lumpkin et al (2009) find that there are problems either with the construct of Entrepreneurial Orientation, its measure, or both. Short et al (2010) underscore that EO empirical studies show mixed results and non-findings. Finally, Kreiser and his colleagues (Kresier et al, 2010) demonstrate that national culture influences the dimensions of EO. This paper offers a comparative study of the main models used to conceptualize organizational entrepreneurship.

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[4] EO has become central in the study of organisational entrepreneurship. Short et al, 2010 highlighted that the seminal article by Lumpkin & Dess (1996) is cited over 1000 times in Google.scholar.com.(Short et al, 2010, Construct validation using CATA : an illustration using entrepreneurial orientation, *Organizational Research Mathods,* 2010 :13 :320)

Why are these models based on the same construct? What are their similarities and differences? Are these models truly different? How do strategy and entrepreneurship articulate in these models? We did not find answers to these questions in existing literature, and this motivated our work; at a moment when the EO construct is questioned we hope to nourish the scientific debate. We will first present the different models, secondly we will operate a targeted comparison, and we will finish with our discussion and conclusion.

1. The main models of organizational entrepreneurship

Our study focusses the models of Miller (1983), Stevenson and his colleagues (1983, 1985, 1986, 1990), Covin and Slevin (1991) extended by Zahra (1993), Lumpkin and Dess (1996), and Ireland et al. (2009), because they have consecrated, been assimilated to, or are based on the EO construct. This choice was made to delimit the scope of our study.

1.1. Miller's contingent model

We would like to point out that organizational factors or a typology of firms was at the heart of the studies at the genesis of EO (Miller & Friesen 1982, Miller 1983). These studies aimed at identifying the path towards entrepreneurship, according to the type of organization or contingency factors such as the environment, strategy, and organization. In the first article, Miller and Freisen (1982) oppose the entrepreneurial organization (where innovation is the normal state of activities), to the conservative organization (where innovation is a response to danger). In the second, « *The Correlates of Entrepreneurship in Three Types of Firms* », Miller (1983) establishes a typology in order to discover the correlates between entrepreneurship and the type of organization (simple, planning, and organic). In the first, the simple firm, entrepreneurship is correlated with the top manager (his locus of control, power, technical and technological capacities). In the second, the planning firm, entrepreneurship depends on planning and the personality of the leader. Finally, in the organic firm, entrepreneurship is related to the adaptation of the structure and the organization to its environment. To measure entrepreneurship (as dependent variable), Miller created a scale including innovation, proactiveness, and risk taking.

Three important points should be noted. First, Miller, in his 1983 article, conceived what will later become EO, as an arithmetic average, an aggregated dependent variable. Secondly, entrepreneurship is compatible with different types of organizations, including planning firms. Third, Miller et Friesen (1982) warned: the excess of entrepreneurship can be harmful to an organization. A major contribution of this article is to initiate the shift in the paradigm of entrepreneurship: "But what is most important is not who is the critical actor, but the *process* of entrepreneurship itself and the organizational factors which foster and impede it" (Miller, 1983:770). The study includes environmental, structural, and strategic variables, and the locus of control of the top manager. The strategic variables Miller used (analysis, futurity, explicitness of strategy and strategic integration) concern strategy formation and not the consecration of a particular strategy. This choice is justified because these variables will play a different role according to the type of organization. We can observe that this work is widely used (« *The correlates of entrepreneurship in three types of firms* » is cited in the BSP database 260 times), but was it correctly understood? Was the spirit of the study respected?

1.2. Stevenson's Entrepreneurial Management (EM)

Stevenson and Jarillo (1986, 1990) expressly qualified « mode of management » the concept initially elaborated by Stevenson (1983), and further developed with Gumpert (Stevenson & Gumpert, 1985). They define entrepreneurship as “a process by which individuals—either on their own or inside organizations—pursue opportunities without regard to the resources they currently control" (Stevenson & Jarillo, 1990:23). The mode of management, through its six dimensions (Strategic orientation, Commitment to opportunity, Commitment of Resources, Control of Resources, Management Structure, Reward philosophy), operationalizes this definition. The first three dimensions are strategic in nature; the latter three support this strategy, and can be considered as tools at management’s disposition to encourage the identification and pursuit of opportunities, gages of the organizations entrepreneurial activity (Randerson & Fayolle, 2010).

Lumpkin and Dess (1996) posited, without demonstrating, that EO and EM were analogous. Brown et al (2001), in their study aiming at operationalizing EM, mobilized the EO scales (Miller, 1983; Covin and Slevin, 1989) and developed questions based on Stevenson’s work. The study showed that there is a positive correlation between these two concepts, but they are distinct and only partly overlap: neither one of them can solely determine oe.

In this same study, Brown and his colleagues added two dimensions to EM: growth strategy and entrepreneurial culture. According to these authors, promoters seek growth and EM tends towards growth. We think that this lecture of Stevenson’s work is over enthusiastic: if the desired future state is characterized by growth, Stevenson refers here to the promoter (person) and not to the organization because Stevenson warns us against firm growth, which brings along hierarchization and specification, the loss of entrepreneurship. Brown et al (2001) describe the entrepreneurial culture as one that encourages creativity in relation to opportunity. We argue that this is useless complexification of the concept. Entrepreneurial culture is nothing more than the effective combination of the detection of opportunities, the will to pursue them, and the confidence in success. These factors already figure in other dimensions of EM, we do not consider pertinent to add another specific dimension.

1.3. Covin & Slevin's (1991) behavioral model (criticized and extended by Zahra (1993))

Covin and Slevin's model integrates EO under the term « entrepreneurial posture », which would directly and significantly influence the organization's performance. This posture would be influenced by external, strategic, and internal variables. We note that causality is reciprocal, because the internal variables (values, philosophy of top management, resources and organizational competencies, culture, structure) influence and are influenced by the entrepreneurial posture. These variables would also have a direct moderating effect upon the link between posture and performance. The idea that autonomous strategic behavior influences the organizational paradigm, which in turn influences induced strategic behavior (Burgelman, 1983), is present here.

This model is different from Miller's 1983 conception, because the dimensions that constituent EO are now grouped into a unique dependent variable: the "entrepreneurial posture". The framework is no longer contingency, but that of an integrative model where the relationship posture – performance (ultimate dependent variable according to Covin and Slevin, 1991:XX), is at the heart of the study. This posture can be affected by external, internal, and strategic variables;

the relationship posture – performance can be indirectly affected by these variables. Finally, these variables can also be affected by the posture.

When we compare this model with Miller's work (Miller and Friesen, 1982, Miller, 1983), we question. The initial works placed the aggregated "entrepreneurship" variable in dependent variable (innovation and risk-taking, then innovation, risk-taking and proactiveness). These two studies opened the door of entrepreneurship to different types of organizations, seeking to identify for each the specific path towards entrepreneurship or innovation "The literature on product innovation, although fraught with conflict, seems to point preponderantly to a conservative model of innovation" (Miller et Friesen 1982:3); and « Some might be tempted to say that these firms will be anything but entrepreneurial. But Planning firms often pursue a systematic, orderly process of innovation and product-market renewal" (Miller, 1983:773). Neither of these models advocates entrepreneurship per se – Miller and Friesen (1982) even warn against excess entrepreneurship.

This model was criticized and extended by Zahra (1993). Among other suggestions, he criticized first the pertinence of the entrepreneurial posture, arguing that this instrument measured a disposition towards entrepreneurship but not entrepreneurship strictly speaking. He completed the model in its variables (external, strategic, and internal) that would influence organizational entrepreneurship. Zahra (1993:6) questions the pertinence of using EO, since it is not clear whether Covin and Slevin refer to 1) the intensity of this behavior, 2) the formalism of the activities that an organization undertakes to renew itself and thus define its strategy, or 3) the duration of these efforts. The author adds to the initial internal variables the background (training and experience) of top management and the processes (fairness and participation in the elaboration of the new activity).

1.4. Lumpkin & Dess's 1996 conceptual framework

Lumpkin and Dess (1996 : « Clarifying the Entrepreneurial Orientation Construct and Linking it to Performance ») elaborated an conceptual model of Entrepreneurial Orientation, placing environmental factors (dynamism, munificence, complexity, and industry) and organizational factors (size, structure, strategy, strategy making process, organizational resources, culture and characteristics of top management) between an organization's EO and its performance. Here, the strategic intention is not specifically formulated; it is deduced from behaviors reflecting the following five dimensions. To the initial dimensions of innovation, proactiveness, and risk-taking, Lumpkin and Dess add competitive aggressiveness and autonomy.

This clarification was criticized (Basso *et al.*, 2009) in its additional dimensions and in its operationalization. According to these authors, the dimension competitive aggressiveness is undistinguishable from that of proactiveness, and that autonomy is already present in risk-taking. In addition, the dimensions overlap: the operationalization includes questions about intentions, but also about their results. In their 1996 article, Lumpkin and Dess operate a radical change. First, they replace the binary approach (the orientation can be entrepreneurial or conservative), with a continuum (entrepreneurial – conservative). Also, they reduce EO to processes, procedures, and decision-making activities that lead to new entry, in the traditionally restrictive optic dear to individual entrepreneurship. Next, they open the stage to other organizational actors: "Thus, it involves the intentions and actions of key players functioning in a dynamic generative process aimed at new-venture creation." (Lumpkin and Dess, 1996: 136). These intentions and actions are no longer reserved to top management, but we have no indication of who these actors can be. Finally, building upon the work of Kreiser *et al.*, (2002), they suggest a rupture concerning the co-variance of the dimensions: "we suggest that autonomy, innovativeness, risk taking, proactiveness, and competitive aggressiveness may vary independently, depending on the environmental and organizational context." (Lumpkin and Dess, 1996:137). This model is distinct from the precedent models, as (Basso *et al.*, 2009:190) note, underscoring that the concept has undergone alterations and the attempt to clarify the concept is in fact the inauguration of a reinterpretation of the concept, aiming at using it to unify a field marked by its diversity. The recent works of the authors of the "clarification" (Lumpkin *et al.*, 2009) have noted first that most scholars, in their studies done after 1996 continue using the three original dimensions, and they conclude that there are problems with the construct and/or its measure.

1.5. The CES model: Ireland et al (2009)

The Corporate Entrepreneurship Strategy (CES), conceptualized by Ireland *et al.* (2009:24) integrates directly and completely the EO concept as seen by Lumpkin and Dess. "By contrast, the CE strategy model shown in Figure 1 specifies not what the behavioral dimensions of EO are, but how the organizational state or quality that is EO is manifested across the organization by implementing a particular strategy. As such, an EO is subsumed within our model of CE strategy".

The CES model is composed of antecedents, elements, and consequences of a CES, and this at different levels (individual, top management, and organizational). The elements of a CES strictly speaking are an entrepreneurial strategic vision, entrepreneurial processes and behaviors, and an organizational architecture favorable to entrepreneurship. It can be noted that the individuals that compose the organization are expressly a part of the model: through their behaviors but also their beliefs, attitudes, and values in relation to entrepreneurship. Here we find the notion of the locus of entrepreneurship.

The CES model does not conceptualize the interface between entrepreneurship and the strategic processes of an organization. On the contrary, an entrepreneurial strategy implies that the strategic intention of the organization be to pursue expressly and continuously business opportunities aiming for growth and for competitive advantage. Adopting a CES (as opposed to, for example, a strategy of diversification, of differentiation, or of cost control) implies that the primary activities associated with entrepreneurship (opportunity identification) be integrated to the primary activities associated with strategic management (opportunity exploitation) in order for the CES to be effective.

This brief presentation of the models of organizational entrepreneurship show that these models refer to distinct concepts; they each allotted a specific space for strategy. In our second part we will compare these models.

2. A comparison of these models

An in-depth thematic analysis of the literature brought us to propose the following distinctions: the definition of entrepreneurship to which the model refers to, the expected outcomes, and the type of the model. We will first develop the paradigmatic differences of these models, and then target specifically on the dialogue "entrepreneurship / strategy".

2.1. The different paradigms justify the multiplication of models

These different paradigms, which can be perceived through the examination of the definition of entrepreneurship in which the model is enrolled, the expected outcomes, and the type of model (variables figuring in table 1) bring elements of response to the question: why so many models?

Table 1: Synthetic comparison of the models

	Miller (1983)	**Stevenson (1985)**	**Covin & Slevin (1991)**	**Lumpkin & Dess (1996)**	**Ireland et al (2009)**
Paradigm of entrepreneurship	Behavioral	Processus	Behavioral	New entry	
Expected outcomes	Focussed	Dispersed	Dispersed	Focussed	Dispersed
Type	Contingent model	Mode of management	Comprehensive model	Measure of entrepreneurial intensity	Comprehensive model
Strategy and organizational entrepreneurship	N/A	Strategy = entrepreneurship	Duality strategy / firm-level entrepreneurship	Duality strategy / firm-level entrepreneurship	Strategy = entrepreneurship
Strategic actor	Any member of the organization	Any member of the organization	Top management	Key actors	Any member of the organization

We note that the definition of entrepreneurship is different according to the authors of these models. For some, entrepreneurship is deduced from a behavior (Miller, 1983; Covin & Slevin, 1991; Zahra, 1993). For others, it is successful accomplishment: new entry (Lumpkin & Dess, 1996). Finally, some see it as a process (Stevenson & Jarillo, 1990). The definition is important, because it signals scholarly interest. In other terms, a scholar will focus on a situation where he/she observed the phenomena as behavior (risk-taking, innovation, competitive aggressiveness, proactiveness, autonomy), or as new entry (new product or service) or as process, according to the definition retained.

The expected outcome of organizational entrepreneurship differs in these models; The conceptualizations of Stevenson, Covin and Slevin, and Ireland on one side; and Lumpkin and Dess on the other illustrate the distinction proposed by Birkinshaw (Birkinshaw, 1997:208) according to who “focused corporate entrepreneurship” (or corporate venturing) and “dispersed corporate entrepreneurship” (or intrapreneurship) cover two distinct realities. This author notes that entrepreneurship and management are two distinct processes, which need different organizational structures to be effective. Focused organizational entrepreneurship is trusted to semi-autonomous units having the mission to develop new business opportunities. Intrapreneurship is based on the belief that each member of the organization is gifted with managerial and entrepreneurial capacities that he/she can mobilized more or less simultaneously. Birkinshaw (1997:209) cites the antecedents usually found in the literature: an entrepreneurial culture, an organic structure, personal engagement and implication of the employees. He underscores that managerial and entrepreneurial responsibilities are difficult to reconcile, the first often taking the priority over the second because more precisely defined and leading to immediate recognition. Citing Drucker (1985), he notes that intrapreneurship (dispersed) can even inhibit entrepreneurship if it is not correctly managed. This same distinction is operated by Basso (2006), who chooses the terms “enclave” and “impregnation”. He emphasizes that the enclave form is the most often utilized, and relate it to firm ambidexterity (Tushman et O’Reilly III, 1996),and the exploration/ exploitation dilemma (March,1991)

These models are qualified, by their respective authors, as “contingent”, “mode of management”, “model of entrepreneurship”, “measure of entrepreneurial intensity”, “process”, or “comprehensive model”; they evolve in different typologies, and operate on different levels. We have already noted that Miller’s study (1983) was conceived under the contingency theory. Covin and Slevin (1991), Zahra (1993) and Ireland et al. (2009) proposed models that they wanted comprehensive, including in the scope the antecedents and the consequences of organizational entrepreneurship. They sought to establish, through these models, a unique path towards organizational entrepreneurship, aiming at performance through positive non-financial implications such as competitive capacity or strategic repositioning. Here, the organization is considered as entrepreneurial, or not. These models give very few operational indications on how to build entrepreneurial intention, or how to intensify entrepreneurial processes. Great efforts were dedicated to researching exhaustively the variables, and sometimes the interactions between these variables, but we have little information about the contents. The CES model by Ireland et al can be seen as an ideal (2009:39) “Specifically, CE strategy will be hard to create, and perhaps, even harder to perpetuate in organizations. […]Breakdowns in any of the three elements of CE strategy, or in linkages between or among these elements, would undermine the viability of such strategy”. Firms with effective CES strategies may be few in numbers because CES strategies are not robust, and because organizations deploying a highly entrepreneurial CES may collapse (2009:40). This is problematic, as Birkinshaw (1997) reminded us of the disastrous consequences of a “failed” entrepreneurial strategy. Stevenson and his colleagues explicitly qualified their conceptualization as a “mode of management”.

2.2. Which place for strategy in these models?

We can note that the models included in our scope of study have either adopted an entrepreneurial strategy (opportunity pursuit) as organizational strategy (Stevenson & Jarillo, 1990; Ireland *et al.*, 2009), or have placed strategy as mediating variable (Covin & Slevin, 1991; Zahra, 1993; Lumpkin & Dess, 1996). Miller’s model treated separately, because the strategic variables were borrowed from Mintzberg (1973), and have different consequences according to the organizational type. Also, the strategic actor (he/she who bears the burden if the entrepreneurial initiative) varies: sometimes identified, others unidentified.

EM and CES take entrepreneurial strategy for organizational strategy. In the conceptualization proposed by Stevenson and his colleagues, three dimensions reflect the strategic intention of the concept: strategic orientation, control of resources, and opportunity pursuit. “Strategic orientation” reflects strategy creation, centered on identification and pursuit of opportunities, new combinations of resources, to create value. The identification and pursuit of opportunities independently of resources controlled calls for an analysis at two levels. First, the strategy is not elaborated in order to efficiently use or optimize current resources: the notions of opportunity and maximization exclude on another. Next, the entrepreneur will be brought to use or extract value from resources belonging to others. Finally, in an entrepreneurial behavior, intention is not sufficient, it is action that counts. The notion of opportunity is specific, Stevenson and Gumpert, in 1985, defined opportunity as a future state deemed desirable and attainable, less restrictive than “business opportunity”. Thus, the new combination of resources can lead to the proposition of a new product or service, but also come reinforce the resource base of the organization. The new combination of resources can lead to a new product or service as a new business or building the organization’s resource base (Fonrouge, 2008). It can embody change, assimilating the process of change to that of entrepreneurship (Soparnot, 2009). Finally, this strategy of identification and pursuit of opportunities regardless of resources can take different forms, for example strategies of development by growth, by partnerships, and incremental (Polge, 2008).

The CES model dictates that the strategic intention of the organization is to expressly and continuously exploit business opportunities for growth and competitive advantage. These authors underscore the limitations of such strategy: first one must admit that a CES implies implication and involvement, and that these efforts rest upon and are facilitated by an alignment by pair or by sub-unit (“a bundle of fits”), in particular the circulation of information. Next, and more importantly, adopting a CES (as opposed to, for example, a strategy of diversification, differentiation, or cost control) implies that the primary activities associated with entrepreneurship and those associated with strategic management be integrated. We have already underscored the rareness and the fragility of CES, according to its genitors.

In the Covin and Slevin and Lumpkin and Dess models, strategy is a mediating variable. Covin and Slevin (1991) included specific strategic variables such as mission and competitive tactics and business practices. Lumpkin and Dess (1996) place strategy among the organizational factors, as mediating variable. Here, strategy is distinct from EO, it is not explicit. “The dimensions of a firm's strategy-making processes may be viewed as encompassing the entire range of organizational activities that involve planning, decision making, and strategic management. Such processes also encompass many aspects of the organization's culture, shared value system, and corporate vision" (Lumpkin and Dess, 1996:139).

In these models we note that there is, on one side EO which is deduced from the behavior of the organization and/or its members, and on the other a strategy distinct from EO. These behaviors translate innovation, proactiveness, risk-taking competitive aggressiveness, and autonomy. In the Covin and Slevin model (1991), as well as in Zahra's clarification (1993), the strategic variables influence the entrepreneurial posture (EO); this posture also influences the strategy. In the Lumpkin and Dess model (1996), these behaviors are the starting point to go towards performance; this relationship is affected by internal variables, among which the strategy.

The strategic actor (term we have preferred to « locus of entrepreneurship » because the entrepreneurial initiative can come from several levels) is different according to the different models currently under study. Miller's work (Miller 1983:770), opening the path, indicates that "the entrepreneurial role stressed by Schumpeter is socially vital but it can be performed by entire organizations which are decentralized. It can easily exceed or even circumvent the contributions of one central actor. In some firms, organizational renewal is performed by a traditional entrepreneur. In other firms, it is the province of a head office "planning" or "ventures" department. And in still other organizations it may be performed at lower levels of the hierarchy in R&D, engineering, marketing or even production departments. But what is most important is not who is the critical actor, but the *process* of entrepreneurship itself and the organizational factors which foster and impede it." Thus, the strategic actor will be function of the organizational type and contingency factors.

In EM, “The crux of corporate entrepreneurship is, then, that opportunity *for the firm* has to be pursued by *individuals* within it, who may have perceptions of personal opportunity more or less at variance with opportunity for the firm. In addition, an opportunity can hardly be pursued, of course, if it has not been spotted” (Stevenson & Jarillo,1990:24). Here, any member of the organization is potentially a strategic actor.

For Covin and Slevin (1991:13), strategy is more concerned by the main goals of the organization than by the specific means to get there (the entrepreneurial posture). The latter (1991:7) is identifiable by “particular behavioral patterns [which] pervade the organization at all levels and reflect the top managers' overall strategic philosophy on effective management practice », and can be associated with a “build” strategy. The strategic actor in this model is the top manager. In his clarification, Zahra (1993) did not suggest changes to the strategic variables suggested by Covin and Slevin (1991). But he did criticize the absence of a locus of entrepreneurship, and suggested taking into consideration several levels of analysis. This would allow first to discern the particular needs at the different levels in their entrepreneurial activities. Also, recognizing entrepreneurial activities at different levels enables the study of the interaction of these variables at different levels. Finally, the multiplication of the levels of analysis will give scholars matter for the synthesizing of data and meta-analysis. Here, once again, we underscore the difficulty of distinguishing entrepreneurial action and strategic action.

For Lumpkin and Dess (1996:136), EO “involves the intentions and actions of key players functioning in a dynamic generative process aimed at new-venture creation.” We note here a double limitation: the behaviors constituting EO are reserved to a certain category of persons, and secondly that these behaviors aim at the creation of a new activity. Ireland et al’s CES also adopts a duality between “strategic actors” (top managers elaborating the entrepreneurial strategic vision) and the members of the organization embodying this strategic vision in their behaviors. Here, the duality should not create ambiguity, because these entrepreneurial behaviors put into action this strategy.

In these models, where entrepreneurial behaviors are present, sometimes at different levels, and where an organizational strategy is also in movement, the evident question is that of their compatibility, of the dialogue between the two.

3. Discussion and conclusion

We have first presented different models of organizational entrepreneurship, articulated around the EO concept. The works of Miller and Friesen (1982) and Miller (1983) isolated the behaviors of risk-taking, innovation, and proactiveness as qualifiers of entrepreneurship. The Covin and Slevin model (1991) reviewed and enlarged by Zahra (1993) name these behaviors “entrepreneurial posture”, and position them as dependent variable. Lumpkin and Dess (1996), in their effort to clarify, initiated a new concept. To the initial dimensions, they added autonomy and competitive aggressiveness. These five dimensions are said to lead to organizational performance; nevertheless the relationship EO/performance can be affected by internal and environmental variables. Stevenson and colleagues’ EM have been assimilated to Lupkin and Dess’ model, but these works refer to another paradigm of entrepreneurship. The CES model, like the precedent, adopts entrepreneurship as organizational strategy. This strategy is manifested by EO behaviors of its members, but also through an entrepreneurial strategic vision.

We went on to compare these different models. But are these models commensurable? Although we adopted the EO construct to delimit the scope of our study, we conclude that these notions are heteroclite, and witness very specific visions. As such, major distinctions can be operated. The definition of entrepreneurship in which the model evolves is of importance, because it determines the interest of the study. The scholar will qualify the object as behavior, new entry, or process. It is the definition retained that gives its sense to each model. EO and the Covin and Slevin models evolve in the frame of a definition of entrepreneurship as new entry: will be of scholarly interest situations of new venture creation. This leads to focused corporate entrepreneurship (or corporate venturing). EM and CES are illustrations of dispersed corporate entrepreneurship (or intrapreneurship). Zahra pointed out that the Covin and Slevin model belonged to the first, and suggested incorporating corporate venturing mechanisms in the model. Can these two forms co-exist in an organization? The question, in the present case is: should entrepreneurial activities be performed by a handful of people, or should they be dispersed throughout the organization, any member of the organization susceptible to perform an entrepreneurial activity, or if these two schemes can co-exist simultaneously in an organization.

Are these different approaches the consequence of the multiple definitions of entrepreneurship? As a multidimensional phenomenon (Gartner, 1985), it would be interesting to further study complementarities of these models. We find an illustration of this in Brown et al's (2001) work: in an effort to operationalize EM, they included both EM and EO, and find that EO and EM contribute to firm-level entrepreneurship, but neither one suffices to explain it alone.

The utility of these models is also very different. If Miller (1983) established his model in the contingency theory, Covin and Slevin (1991) and Zahra (1993), and Ireland et al (2009) proposed models that aimed at being comprehensive and exhaustive, including antecedents and consequences of EO. Through modeling they sought to establish a sure path to entrepreneurship, performance, and positive non-financial outcomes. Ireland and al's model can be seen as an ideal (2009:39). Being exhaustive and demanding, it is also fragile, because the absence of a single component or the failure of a single link will attain the viability of such a strategy. Stevenson and his colleagues expressly qualify as "mode of management" their conceptualization, setting it in an original paradigm of entrepreneurship, where it can thrive in any organization.

Two of these models (those of Stevenson and Ireland) adopt entrepreneurship as organizational strategy. The others admit a duality between strategy and individual behavior (more or less numerous, at different levels) qualified as entrepreneurial (the three to five dimensions of EO). Stevenson's entrepreneurial strategy consists of identifying and pursuing an opportunity (defined as a future state deemed desirable and feasible), regardless of resources currently controlled. Ireland and al's CES model comprises a strategic entrepreneurial vision, entrepreneurial behaviors, aiming at continually and intentionally renewing the organization through the identification and pursuit of opportunities. Thus, strategy, in these two models is defined in relation to the identification and pursuit of opportunities.

The other models include strategic variables, but admit the idea of another strategy that that deduced through the strategic behavior of the members of the organization. For Dess et al (1997:677) EO is identical to "entrepreneurial strategy making" (ESM), where strategy is a mediating variable between ESM and performance. They demonstrate that ESM is a specific strategy making process characterized by the three dimensions of EO and experimentation. It is interesting to note in that it was the firms which adopted a cost strategy (as opposed to differentiation) combined with ESM which achieved the best performance: is this an illustration of opportunity pursuit regardless of resources, as defined by Stevenson? Dess et al (1999:91) suggest that the main advantage of organizational entrepreneurship may be to encourage firms to use a range of strategies, often in unique combinations, and tend towards performance in each. Morino and Casillas (2008), in their study of the relationship between EO and growth, found that the relationship is indirect, mediating or moderating variables, e.g. strategy, influence this relationship. They observe, for example, that a strong EO induces expansion strategies (Ansoff, 1965) and prospection strategies (Miles & Snow, 1978).

The strategic actors of these two models are identified: in EM first it can be any member of the organization. This can reflect a “deep locus of planning” (Barringer and Bluedorn, 1999), a level of individual implication in the planning process which leads to a high level of entrepreneurship, because it facilitates opportunity recognition and multiplies the number of different viewpoints. This is also the case in CES, but the entrepreneurial strategic vision is determined by the top management. Here, any member of the firm is potentially a strategic actor: it is induced strategic behavior according to Burgelman (1983). The other models adopt this dualism: the entrepreneurial character of the organization is deduced from the behavior of its members. Nevertheless, these models also include distinct strategic variables, which de not (necessarily) reflect an entrepreneurial strategy. How can these two strategies cohabit? What can be the dialogue between these different types of actors?

Even though most of these models make reference to entrepreneurial processes, very little is written about the contents of such processes, with the exception of EM which adopts a process definition of entrepreneurship. Throughout our developments we have pointed out the heterogeneity of the realities covered by these conceptual models. We agree with Dess et al (1999) who call for research on such processes. We think that the contents of these processes is worthy of scholarly interest; the methodology of such research is specific (Langley, 1999; van de Ven, 1992). But would we study the processes in relation to a specific behavior? Those leading to new entry? Or those enacted to pursue an opportunity regardless of resources? Focusing our research on processes should help us avoid selection bias: current research studies mainly new entry, which leads us to exclude entrepreneurial efforts which have not reached this stage (Davidsson, 2003), or which have led to other effects (Guth & Ginsberg, 1990, Covin & Miles, 1999).

Our contribution to the literature is first a synthetic presentation and an in-depth analysis of the models of organizational entrepreneurship based on EO. We have shown that although they are built on the same concept, these models are very specific. They are related to different definitions of entrepreneurship, have distinct utilities and weights. In models where there are dual strategies and strategic actors, it would be necessary to be attentive to the compatibility of these visions and the dialogue between the actors at different levels.

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A Critical Perspective on Entrepreneurial Orientation: Conceptual, Theoretical and Methodological Issues[5]

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[5] We warmly thank Danny Miller for having brought answers to the questions we asked about entrepreneurial orientation.

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A critical Perspective on Entrepreneurial Orientation: Conceptual, Theoretical and Methodological Issues

ABSTRACT: This article offers a critique of the prevalent theoretical lens used to study firm-level entrepreneurial behavior: entrepreneurial orientation (Covin & Slevin, 1991; Kreiser, et al., 2002; Lumpkin & Dess, 1996; Miller, 1983). We identify some important discrepancies and blind spots on the theoretical, conceptual, and empirical levels. Theoretically, EO is the fruit of a liberal understanding of Miller's 1983 work (Covin & Wales, 2012; Miller, 2011); undermined by inconsistencies and void of context. We demonstrate that there are actually four main conceptualizations behind the term "EO", currently hindering knowledge accumulation and creating confusion. The main focus of EO research to date has been that of its measure and relationship with performance (George & Marino, 2011), using scales which were not intended for this use (Covin & Wales, 2012). We identify and pose questions that the obsession with measure has lead EO scholars to overlook: which behaviors can be qualified as entrepreneurial? How do individual and group-level behaviors interact? How can we attain conceptual coherency and coherent measurement frameworks? We conclude our essay with suggestions for future research.

KEYWORDS: Corporate entrepreneurship, firm-level entrepreneurial behavior, entrepreneurial orientation, critique,

Entrepreneurial orientation (EO) has attracted a great deal of scholarly attention over the past 25 years, coming to eclipse corporate entrepreneurship (Covin & Lumpkin, 2012). For these authors, many scholars situate EO as an aspect of CE, for others (George & Marino, 2011) EO is purely and simply synonymous to CE. The introductory article to this Unplugged (S.A. Zahra, Randerson, & Fayolle, 2012) endeavored to delineate the boundaries of the different angles through which the phenomena of entrepreneurship in an organizational setting has been studied, and positioned EO within this landscape.

Covin and Lumpkin note that EO is seen as an "annoying construct", and that "for every scholar who employs the construct of EO in his or her research, there is another scholar who simply wishes it would exit the scholarly conversation" (Covin & Lumpkin, 2012). The intent of this paper is not to see EO exit the scholarly conversation, but to shed light upon the blind spots, discrepancies, and opportunities of improvement. The works of our predecessors have served the field well, and with this work our purpose is to build upon the less developed aspects of entrepreneurship as organizational-level behavior.

As note Covin and Lumpkin (2012), EO is a needed construct. Danny Miller's article[6] (Miller, 1983) was ground-breaking in that it opened entrepreneurship to firms (organizations) – it was novel because it deviated focus from the traditional view (identification of entrepreneurship with that of a dominant organizational personality and the innovative abilities of this entrepreneurial actor) to decrypt the entrepreneurial activity of the firm (p770). To unveil the processes of entrepreneurship and the organizational factors which foster and impede it in different organizational configurations, he created the variable "entrepreneurship" as the aggregate average of three dimensions: risk-taking, innovation, and pro-activeness. Danny Miller chose the variables he thought best reflected the ideas of some entrepreneurship classics of the day (Miller, 2011), until then applied essentially to the individual entrepreneur; in the classic theory, an

[6] Several interesting publications have retraced the history of the concept of EO (eg: Basso, Fayolle & Bouchard, 2009; Edmond &Wicklund, 2010).

entrepreneur takes risks in the perspective of great gains, is an agent of innovation, and is quick to act when he discovers or identifies and opportunity. Much ink has flown over the proper comprehension of covariance of these three initial dimensions.

Question for Danny Miller: would you like to dot the i's on the question of covariance? As I wrote in my 2011 article (and those were, to my mind, pretty significant dots): "Indeed, table III of the 1983 article demonstrated that the firm types differed significantly in the extent to which they exhibited each of the three component variables, and Appendix I showed that these *components* had rather different sources even within a given type—so, for example, in the simple firm, proactiveness and risk were associated with scanning activity, whereas innovation was not. Such discrepancies were the rule, not the exception, and now I am sorry I did not stress that point more." (p.875).

EO can serve the needs of practice, an entrepreneurial organization being opposed to a bureaucratic one. Practice can refer to EO literature to open entrepreneurship to bureaucratic organizations strictly speaking (utilities, administrations, public services recently exposed to market conditions and who need to improve service and profitability to survive) or organizations which have become bureaucratic due to size, age or culture.

Our aim, in this article, is to offer a constructive criticism, shedding light upon discrepancies and inconsistencies, to propose a clearer and more robust framework, enabling knowledge accumulation. We first identify the main issues affecting EO, in its theory, construct, or measure. In our developments we will demonstrate that there are, in fact, at least four main conceptualizations of EO, and that scholars need to be attentive to the conceptualization they espouse in their works as well as the definition of each of the dimensions or components. We go on to suggest overall recommendations for future research.

Sources of concern about EO

We have identified and will develop three sources of concern: theoretical issues, conceptual issues, and empirical issues.

Theoretical issues

EO presents here two main preoccupations: inconsistencies in theory development and context is ignored.

Inconsistencies

The foci of Miller's 1983 work was not the definition of firm-level entrepreneurship, but the identification of the underlying mechanisms, in different types of organizations, leading to the result of entrepreneurship *ad hoc* (innovation, risk-taking, and pro-activeness). This definition of entrepreneurship is derived from the behavioral perspective (as opposed to, for example, the psychological perspective, where we could have found the variable need for achievement), and carries the assumption that firms will deploy the same entrepreneurial behaviors as individuals.

We note that the research immediately ensuing adopted this definition, without questioning it. The aggregate dependent variable (EO) was taken out of its initial context (designed to identify which organizational properties lead to this result), to become independent variable leading to performance (Covin & Slevin, 1991), and inserted in multiple attempts to model firm-level entrepreneurial behavior (Covin & Slevin, 1991; Ireland, et al., 2009; Jennings & Lumpkin, 1989; Kuratko, Hornsby, Naffziger, & Montagno, 1993; Lumpkin & Dess, 1996; Shaker A. Zahra, 1991, 1993a). (Covin & Wales, 2012) admit: " The Miller/Covin and Slevin (1989) scale was intended to operationalize the construct of EO as originally discussed by Miller (1983), the scale as it's commonly employed does not do this." We posit that when (Covin & Slevin, 1989, 1991) built upon Miller's 1983 study, moving innovativeness, pro-activeness, and risk-taking from dependent variable to independent variable, as when Lumpkin and Dess's (1996) attempted to “clarify”, they borrowed and extended Miller’s framework without assessing if in doing so they were violating his fundamental assumptions (Miller, 1983:780), their near-sightedness blinded them to the pitfalls of importing, extending, and modifying the aggregate entrepreneurship variable (Shaker A. Zahra & Newey, 2009). Miller’s work should have opened the debate about the nature of firm-level entrepreneurship, not terminated it. Spontaneously, scholars could have questioned the behavioral approach: does firm-level behavior reflect the processes and decision-making activities it intends to? But also which behaviors can be considered as entrepreneurial: can other behaviors be considered?

Question for Danny Miller: for the scholars who wish to build on your original work: what would be the next steps? Connect and adapt to theory and to context, try quantitative measures, please see my ETP 2011 paper. For example (p.878): explore further whether EO is an attitude or a behavior or some combination of the two; develop a greater variety of operationalizations (including the identification of objective measures using secondary data) to make progress on the convergent validity of the measures; entrepreneurship and EO differ greatly according to context (varied sources and performance implications according to the type of new entry, for example); a configurational approach enables the fragmentation of complexity to obtain informative and relevant accounts of particular situations.

Example of the suggested theoretical lenses (p. 881): networks, industry clusters, and economic geography, organizational ecology, agency theory and governance, resource dependency theory and RBV, neo-bureaucratic and contingency theory, organizational change, as well as other functional disciplines.

It is important to underscore that since, the term “Entrepreneurial Orientation” has seen a wide range of definitions, many of which are incompatible with each other (George & Marino, 2011), leading to a lack of consistency and clarity in the conceptual domain of EO (p.993). These authors (George & Marino, 2011), lean upon the work of (Chimezie & Osigweh, 1989) and (Satori, 1970), to demonstrate that the concept suffers from a lack of preciseness. The concept has *travelled*, the extension or breadth of application has increased while its intension or collection of properties encompassed has decreased (e.g. (Avlonitis & Salavou, 2007; Knight, 1997; Merz & Sauber, 1995). It has also been *stretched*, this involves increasing a concept's extension without a concurrent decrease in its intension, resulting in a concept that is extremely broad and difficult to distinguish from other concepts in a meaningful way. This lack of definitional consistency has also affected the definitions of the dimensions of EO, as we will see in the section dedicated to empirical issues.

This has led to multiple, competing conceptualizations of EO which we will develop further. It has become extremely difficult to do rigorous research because EO scholars use literature or empirical results from one conceptualization in studies of another conceptualization. We need to be attentive to the conceptualization we embrace, and respect its fundamental assumptions and measurement method (Covin & Wales, 2012).

EO does not consider context

Context is not considered in this behavioral definition (innovation, proactiveness, risk-taking) of firm level entrepreneurship (Miller, 2011). This author emphasizes that "it is not just type of entry but context, richly characterized, that may influence the entrepreneurial process". He laments: (p. 878) "entrepreneurship and EO differ in nature greatly and according to context, that their sources are varied and multifaceted, and that their performance implications also alter from context to context. But as noted, too often, context is ignored, a tendency that makes it difficult to derive cumulative results (Gary Johns, 2006)."

Recent research has demonstrated the importance of context and introduced new frameworks. (Welter, 2011) notes that “in management research, context refers to circumstances, conditions, situations, or environments that are external to the respective phenomenon and enable or constrain it”. Context is multi-faceted (who, where, and when dimensions), but also multi-level and cross-level. “Where” entrepreneurship happens is contextualized, in this author’s framework (p. 168) in the following dimensions: business, social, spatial, and institutional. (Shaker A. Zahra & Wright, 2011) suggest the dimensions: spatial, time, practice, and change for contextualizing entrepreneurship. Considering the scope of this work, we will develop only the spatial dimension.

National cultures can carry differences (Fayolle, Basso, & Bouchard, 2010; James C. Hayton, George, & Zahra, 2002; Slevin & Terjesen, 2011). Entrepreneurship can be valued (e.g. US, Ireland), or less so (Hungary, Japan) in different national contexts. Moreover, the behaviors considered as entrepreneurial can vary according to national culture. Behaviors such as energy, initiative, or adaptation (Slevin & Terjesen, 2011), or ‘bricolage’ – creating something from nothing (Baker & Nelson, 2005) - can be manifestations of entrepreneurship, equally or even more salient to understand the phenomenon, than those of risk, proactiveness, and innovation.

(Slevin & Terjesen, 2011):983) also underscore that the majority of the EO research is conducted in a handful of developed countries (namely the United States, U.K., Australia, and Germany), neglecting most of the world’s countries. The concept as well as the measures has been developed in North America. Scholars have endeavored to establish the cross national/cross cultural validity of the EO scales (Hansen, Deitz, Tokman, Marino, & Weaver, 2011; Knight, 1997; Kreiser, et al., 2002). Cross-national invariance was established by (Hansen, et al., 2011); we will examine the limitations to these studies in our section dedicated to empirical issues. But only recently (Kreiser, et al., 2010) questioned the impact of national culture and certain institutions that are representative of national culture on two key dimensions of entrepreneurial orientation: risk taking and proactiveness. These authors do indeed find differences across cultures; namely uncertainty avoidance and power distance have a significant negative influence on risk-taking levels; uncertainty avoidance, individualism, and power distance have a negative influence on proactive firm behaviors, and countries whose legal systems are based on French civil law tend to display lower levels of both risk taking and proactive behaviors.

This matters, because if these measures can be valid across cultures, we have not taken the time to question if these measures are the most appropriate to seize organizational-level entrepreneurial behaviors in each specific culture or globally; i.e. we are comparing companies around the world to a yardstick made in USA, whereas among the top 100 firms which are "reshaping global industries" ((BCG), 2011) we find firms from Argentina, Brazil, Chile, China, Egypt, Hungary, India, Indonesia, Malaysia, Mexico, Russia, and Saudi Arabia, among others.

Question for Danny Miller: in addition to the frameworks mentioned above, how can we capture the idiosyncratic characteristics of context? I dealt with this in my 2011 essay – and even in the 1983 paper.

In our theorizing, alternative arguments or explanations have been omitted (Shaker A. Zahra, 2007). For this author, contextualizing research means the effective linking of theory and research objectives and sites, where researchers build on the innate qualities of the phenomena they examine. When we apply an established theory to a new situation, we need to consider the context of the research and ask: where does it come from? What form does it take? How different is it from what exists elsewhere (in other countries, industries…)? Do these differences matter, and if so, how? These questions will lead researchers to consider the richness of the setting they are about to investigate. We should also fully comprehend the foundations of the theory being used, and respect its basic assumptions, and be aware that applying an established theory to a new phenomenon often carries drawbacks, for example assuming the universality of the theory, providing allusive definition of boundaries, or overlooking what findings mean to theory.

Conceptual Issues

EO has suffered from its success. We can identify four main different conceptualizations. Yet, it is incomplete: EO represents a firm-level phenomenon, but this phenomenon is the consequence of individual actors.

Competing conceptualizations

“The lack of a clear, agreed-upon definition prevents us from building our knowledge, which is the ultimate purpose behind scientific inquiry. If each researcher defines and measures a construct differently, then we seriously impede our ability to enhance our knowledge base as the results from one study cannot be used to build theory for another study utilizing a different conceptualization of the construct.” (George & Marino, 2011). These authors note (p. 899) that the EO construct has suffered from the lack of a clear definition, resulting in debates about the nature of the construct, its dimensionality, the interdependence of the dimensions, the nature of the dimensions, and the theoretical relationship between the construct and its antecedent and consequent constructs.

(Covin & Lumpkin, 2012) note that EO, as a latent construct, comports a social construction element to its understanding. The conceptualization of EO, what EO “is”, depends largely on what the scholarly community agrees upon. To date, no conceptualization has been widely recognized by the community (Basso, et al., 2009; Covin & Lumpkin, 2011; Covin & Wales, 2012). Covin and Lumpkin add (2011:859) that the two principal conceptualizations, the first based on the works of Miller (1983) and Covin and Slevin’s (1989) work, the second based on Lumpkin and Dess (1996) are fundamentally different and neither is inherently superior to the other. They also suggest that (2011:867) alternative dimensions can be substituted/added to the uni-dimensional conceptualization of EO, meaning that there may be other combinations of attributes that when viewed collectively will be recognized by the scholarly community as constituting an alternative conceptualization of EO as a single, composite construct.

In his 2011 article, Miller revisits his 1983 work and insists that the three dimensions can vary independently, and it is precisely how they vary that is of interest. Thus, we should add a third conceptualization of EO: Miller's conceptualization cannot be aggregated with Covin & Slevin's (who advocate covariance); (Covin & Wales, 2012) implicitly recognize Miller's work as a distinct conceptualization. And finally, we believe that a fourth conceptualization comes from the works of Kreiser and colleagues (Kreiser & Davis, 2010; Kreiser, et al., 2002). They have adopted a three dimensional, independently varying conceptualization of EO.

Although Covin and Lumpkin (2011) posit that there are to date two recognized conceptualizations of EO, we include Miller's initial work, revisited in 2011, as well as Kreiser and colleagues.

Table 1: Comparison of the different conceptualizations of EO

	Original	'Unidimensional'	'Multidimensional'	3D unidimensional
Seminal work	Miller 1983	Covin & Slevin 1991	Lumpkin & Dess 1996	Kreiser, Marino & Weaver, 2002
Dimensions	Innovation Proactiveness Risk taking	Innovation Proactiveness Risk taking	Innovation Proactiveness Risk taking Autonomy Competitive aggressiveness	Innovation Proactiveness Risk taking
Genre	Quantitative measure of entrepreneurial intensity created as independent variable in order	Strategic posture	Processes, practices, and decision-making activities that lead to new entry (Lumpkin &	Strategic decision-making process (2002:72)

	to identify what leads to this result in different organizational contexts (Miller, 2011)		Dess,1996:137), and ultimately performance.	
Relationship between EO and its dimensions	Formative	Reflective	Formative	Formative
Dimensionality	Dimensions may vary separately according to context (Miller, 2011:875)	Dimensions covary. EO only exists if the three dimensions are present (Covin & Lumpkin, 2011:862)	Dimensions may vary independently. EO is a superordinate construct with the dimensions of risk taking, innovativeness, proactiveness, competitive aggressiveness, and autonomy themselves being constructs that function as specific manifestations of EO (Covin & Lumpkin, 2011:863)	Dimensions may vary independently (Kresier et al, 2002:84) according to structure (Kreiser & Davis, 2010)
Possible evolution of dimensions	N/A	Dimensions may be added or substituted	Dimensions fixed	N/A
Levels of analysis possible	Individual, business unit / spin-off, firm, country	Business unit	Business unit	N/A

We see that there are four distinct conceptualizations of EO. If our endeavor, as scholars, is to encourage dialogue and debate (S. Zahra & Dess, 2001), we should also be attentive to rigor in our work. We note that confusion reigns (George & Marino, 2011). EO has been defined in many, often incompatible ways, and that results from studies based on one conceptualization are incorporated in studies based on another conceptualization, without questioning if there is a potential violation (Shaker A. Zahra & Newey, 2009). To adopt the words of (George & Marino, 2011): "our ability to build on previous work requires that our conceptualizations and definitions be consistent and that our work *refine* our theoretical definitions rather than *redefine* them."

In these different conceptualizations of EO the relationship between the higher-order construct (EO) and its dimensions differs. Covin and Slevin's conceptualization is a second order reflective construct, meaning that "a firm with an entrepreneurial orientation has a strategic posture that is reflected in proactiveness, risk taking, and innovativeness rather than the strategic posture being created by these characteristics", and that a high EO implies a high score on each of its dimensions. Thus, it would seem that EO represents a larger concept than simply the sum of its dimensions and that these dimensions are merely reflections of this larger, unobservable construct that represents the firm's strategic posture (George & Marino, 2011). In the three other conceptualizations, the dimensions (lower order constructs) vary independently to form EO (the higher order construct). We can study EO by studying its dimensions: these are second-order formative conceptualizations. As we will see later, this difference has implications on the measure of the construct.

A firm-level construct, based on individual actions

Throughout these different conceptualizations, there is one shared point: this firm-level behavior is the consequence of individual or team actions. For Miller (1983:770), the entrepreneurial role can be performed by the traditional entrepreneur, but also by the "planning" or "ventures" office, or even at lower levels of the hierarchy in R&D, engineering, marketing or even production departments. The aim of his work was to identify *how* entrepreneurship happens in an organization, the process as entrepreneurship itself and the factors that promote it or inhibit it.

Covin and Slevin's (1991:9) model of entrepreneurship as firm behavior includes environmental, organizational, and individual-level variables; these authors note that "individual managers can have a strong and direct impact on the entrepreneurial potential, behavior, and effectiveness of firm." They portray the individual manager/entrepreneur as the key component in theories and models of the entrepreneurial process. Lumpkin and Dess (1996:136) conceptualization indicates that EO relates to the actions and intentions of "key players", whereas (Kreiser, et al., 2002) note that "individual behavior has often been linked to the formation of firm-level entrepreneurial orientation".

These individual behaviors can occur at different levels of the organization: top-manager, manager, and non-managerial employees. Research has modeled middle-level managers' entrepreneurial behavior (Kuratko, Ireland, Covin, & Hornsby, 2005), developed and refined a multi-dimensional scale –the Corporate Entrepreneurship Assessment Instrument (CEAI) – to assess the organizational characteristics that foster individual entrepreneurial behaviors (Hornsby, et al., 2002; Kuratko, Montagno, & Hornsby, 1990). These authors also identified the key role of perception and position (Hornsby, et al., 2009) i.e. the positive relationship between managerial support and entrepreneurial action is more positive for senior and middle level managers than it is for lower- (first) level managers, and the positive relationship between work discretion and entrepreneurial action is more positive for senior and middle level managers than it is for first-level managers. EO research shows similar findings. In their attempt to identify how EO pervades an organization, Wales and colleagues (Wales, Monsen, & McKelvie, 2011) demonstrate theoretically that EO will vary throughout the organization (spatially, by SBU), throughout the structure (vertically, by organizational level and managerial groups), and over time (in stages similar to life-cycle). They (2011:901) note that non-managerial employees show lower levels of EO than their managers; they explain this difference through differences in perception of organizational identity, agency theory (organizational members who are unable to mitigate or diversify the risk associated with entrepreneurial activities will be more risk averse than those who can; the lower an individual's position in the organizational hierarchy, the fewer options he/she has to diversify risks and the more negatively he/she could perceive and react to risk-taking strategies dictated from above). We should also add that employees are bound to their organization by a labor contract, characterized by the subordination of the employee to the organization. For a full review of the contribution of HRM to corporate entrepreneurship, see the essay by (James C. Hayton, Hornsby, & Bloodgood, 2012) in this issue.

Identifying EO as a multi-level phenomenon (firm-level entrepreneurial behavior is the fruit of the actions of individuals or teams) is important because individuals will act according to their motivations and their environment (Gartner, 1985) but also because dynamic actions-reactions will determine the processes as well as the outcomes.

Empirical issues

Although measurement of the phenomenon has largely overshadowed the study of the phenomenon itself, there are pending issues with the scales usually used to measure it as well as the dimensions composing it.

The Miller/ Covin and Slevin scales

Until recently, EO research has focused on dimensionality and measure, or the relationship of EO with performance. Evidence suggests that there is a more commonly employed measure – the Miller- Covin /Slevin scale, or slight variations of it (George & Marino, 2011; Rauch, Wiklund, Lumpkin, & Frese, 2009).

Scholars (Hansen, et al., 2011; Knight, 1997; Kreiser, et al., 2010; Kreiser, et al., 2002) endeavored to establish validity and dimensionality of the scale. The first (Knight, 1997) established the overall validity of an eight-item variation of the scale in terms of consistency, pattern of facture structure, internal consistency, convergent and discriminant validity. Double-loadings concerned only one item of the proactiveness dimension (Knight, 1997: 218). Kreiser and colleagues (Kreiser, et al., 2002) studied a different eight-item version of this same scale. They conclude that the scale achieved a better fit in the individual country samples and the total sample when modeled with three sub-dimensions and that these three sub-dimensions displayed significant independent variance. They warn: "although the results of this study suggest that the three sub-dimensions of entrepreneurial orientation may vary independently, aggregated measures of EO can still be effectively employed in organizational research. However, such measures should only be employed after careful consideration. It is our belief that researchers expecting a differential relationship between the sub-dimensions of EO and key study variables, or who desire a high level of measurement precision, should typically measure EO as consisting of three unique sub-dimensions" (Kreiser et al, 2002:86). It is important to note that in their effort to establish cross-cultural validity, they chose countries that are close in culture to each other, and close to the US culture. This caveat was rectified in their 2010 study (Kreiser, et al., 2010), where they included countries which were expected to differ on the four dimensions of culture (Hofstede, 1980) as well as on institutional variables; this time, the between-country analysis provides strong evidence of important differences in levels of risk taking and proactiveness between countries and link those differences to unique attributes of the institutional environment (for example, countries whose legal systems are based on French civil law tend to display lower levels of both risk taking and proactive behaviors). This 2010 study (Kreiser, et al., 2010) used a five-item variation (one item excluded). The Hansen et al 2011 study (Hansen, et al., 2011) identifies that a three-factor, six item scale is optimum, but also that the scalar invariance is not established, meaning that a “four” on the Likert scale in one country does not have the same value as a “four” in another country.

Further investigations were initiated by (Lumpkin, et al., 2009). In a comparative study they used the nine-item Covin and Slevin scale and a scale under development including additional items for innovation (2), proactiveness (1) and risk (1), as well as a set to measure autonomy (and additional dimension). They find unexpected results: “Our empirical findings regarding the other dimensions of EO are somewhat troubling and provide a number of research challenges. In particular, our two sets of analyses identified a number of items with cross-loadings that indicate either problems in the conceptual definitions of the EO construct or problems with scale items used quite often in measuring EO, or both.” (2009:64).

These developments illustrate the inconsistencies mentioned previously. We identify a trend in the diminution of the number of items used to measure the construct, the use of different versions of the scale throughout these works, and an overall under exploitation of any negative results or limitations to progress. For example, (Kreiser, et al., 2002) explicitly indicate that the three sub-dimensions should be used to observe differential relationships between them and other variables and in situations where high accuracy is needed. (Rauch, et al., 2009) note, in their meta-analysis on the relationship EO-performance, that of the 51 studies included 37 used a summated concept of EO and 14 a multi-dimensional one. George and Marino (2011:1003) in their examination of 61 empirical studies of EO show that 54 of these have used a summated scale of one form or another.

We can also cite the commonly-identified issues with these scales: the items question only the top-manager, mining results with a “sole respondent” bias; for several items it is quite unclear whether they assess individual or group behaviors; as well as the question to whether some items assess behaviors or attributes.

A short review of each dimension

As noted by George and Marino (2011:992) definitional issues affect also the dimensions of EO.

Question for Danny Miller: in 1983, you selected the variables "innovation, risk-taking, and proactiveness" to form the variable firm level "entrepreneurship"; which variables would be currently pertinent in your opinion? Those variables remain pertinent for a general construct – but the selection really depends on the type of entrepreneurial activity under consideration and possibly the context within which it takes place. Assorted operationalizations might also be guided by the theoretical lens one is using.

<u>Risk-taking</u>

If risk-taking has long been the ideal behavior of the capitalistic entrepreneur, true risk (incurring great debt, for example) could be prejudicial to the organization (Miller & Friesen, 1982; Shaker A. Zahra, 1993a); research has shown that risk taking possesses a curvilinear relationship with performance (Begley & Boyd, 1987).

In classic EO research it is not clear, of the organization or its members, who is to take the risk. How can we manage the tensions between encouraging salaried employees to adopt a risk-taking attitude inside their organizations and the status that comes with a labor contract? As (Gunther McGrath, 1999) notes eloquently "The popular (and sometimes scholarly) enthusiasm for risk taking in the entrepreneurial process wanes considerably in the prospect of failure" – can this risk and potential failure be transferred to the employee, without the theoretical counterpart of substantial gain?

There is also a tension between the individual and the organizational level: a risk-aversive individual may not stop the organization from embarking in a risky adventure; and conversely a risk-taking individual may demonstrate entrepreneurial behaviors that are not cautioned by the organization. This brings us to suggest, we need to better understand *how* firm-level entrepreneurship happens, before perfecting the measure of *how much.*

For George and Marino (2011:1004) "These issues can be traced back to the definition of EO and provides further evidence for the need to clarify the definition in unambiguous terms."

Innovation

"…innovativeness is an important component of an EO, because it reflects an important means by which firms pursue new opportunities" (Lumpkin & Dess, 1996:143), although a firm can show an entrepreneurial behavior without showing innovativeness (Harms & Ehrmann, 2009).

The Merriam Webster on-line dictionary gives two definitions of "innovation": the first is "the introduction of something new"; the second "a new idea, method or device". Applied to entrepreneurial behaviors, we see a troubling duality. An innovative behavior on the individual level can be that of trying new things (ideas, methods, devices) to eventually create something new. A second definition could be a functional one, where innovation is the realm of R&D, New Product Development or marketing. EO research seems to embrace the second, which leads us to make two remarks.

Literature on the subject is constant: innovation requires excess resources (Covin & Slevin, 1991; Lumpkin & Dess, 1996; Miller, 1983; Miller & Friesen, 1982, 1983). This brings to our attention two dilemmas. First that of refereeing resource allocations between projects and functions; and second particularly important today: how can we remain innovative in times of crisis?

A functional definition of innovation could imply a preponderance of R&D and marketing (instead of balanced functions), with its implications on HRM. Inside the R&D and marketing functions, career management will take on specific aspects. Between these functions and the others, where the latter may be deprived of resources compared to the first.

Finally, embracing this approach to innovation can lead to the exclusion of low-technology firms, firms in traditional sectors, or administrations, from entrepreneurial activities, where individual entrepreneurial behaviors are particularly needed.

Proactiveness & competitive aggressiveness

Proactiveness, one of the three initial dimensions of EO, has been defined as "… a firm's propensity to directly and intensely challenge its competitors to achieve entry or improve position, that is, to outperform industry rivals in the marketplace" (Lumpkin & Desss, 1996:148) Responsiveness, reactiveness, a willingness to be unconventional in the means of competing can translate this dimension. Others (Covin & Slevin, 1989) use proactiveness and competitive aggressiveness interchangeably. To distinguish the two dimensions, to add the specific dimension of competitive aggressiveness to the EO construct, Lumpkin & Dess (1996:147) indicate that "Proactiveness refers to how a firm relates to *market opportunities* in the process of new entry. […] Competitive aggressiveness, in contrast, refers to how firms relate to competitors, that is, how firms *respond* to trends and demand that already exists in the marketplace." Restricting this dimension to solely market opportunities influences the generalizability of the construct (George & Marino, 2011).

Lumpkin and Dess (1996:146) affirm first that "By exploiting asymmetries in the marketplace, the first mover can capture unusually high profits and get a head start on establishing brand recognition. Thus, taking initiative by anticipating and pursuing new opportunities and by participating in emerging markets has also become associated with entrepreneurship. […] often referred to as proactiveness." But they adopt a definition of proactiveness as " processes aimed at anticipating and acting on future needs by 'seeking new opportunities which may or may not be related to the present line of operations, introduction of new products and brands ahead of competition, strategically eliminating operations which are in the mature or declining stages of life cycle'". Here, two ideas must be brought to light; first, when we compare this conceptualization, centered on processes, with the Miller / Covin & Slevin scale, it is not surprising to witness side-loadings. Next, (Cahill, 1996) relates the tensions to manage between first entry (or pioneer advantage) and the benefits of being a close follower.

"Beating the competitors to the punch" also implies that several competitors identified the same opportunity at the same time.

Autonomy

Other scholars have already identified that the organization is an opportunity structure for its members (Burgelman, 1983b; Shane & Venkataraman, 2000).

Autonomy is the propensity to act of an individual or a team (Lumpkin & Dess, 1996). In an attempt to understand and measure autonomy they propose to "address the type of autonomy *that is found in organizations with a high EO"* (Lumpkin et al., 2009:48). As the dimensions of EO can vary independently, organizations with a high EO are those which have a high score on *any* of the other four dimensions – thus, the type of autonomy described can be quite elusive, or even tautological if EO results from autonomy. Autonomy cannot be impeded by factors such as resource ability, actions by competitive rivals, or internal organizational considerations would not sufficient to impede the autonomy of the individual or group. It cannot be fostered by changes in organizational structure, such as flattening hierarchies and delegating authority. We note here, that the autonomy dimension relates to individual behavior, not firm-level behavior, and concerns only certain key actors. What is even more puzzling: it cannot be impeded by resource ability or actions by competitive rivals; it cannot be fostered by organizational structure or delegation. How does it happen? If it is so needed (Lumpkin *et al.*, 2009:47) how can an organization get it if it cannot be fostered?

The operationalization of these dimensions also poses problem; for an eloquent example, see (George & Marino, 2011).

Overall recommendations for future research

Our suggestions cover distinct areas, expanding our knowledge base for EO per se, attaining conceptual coherency, and going towards coherent measurements.

Expand our knowledge base for EO per se

Concurrently to research on the measurement methods, other important questions await, some long overdue. We have already mentioned the importance of adopting constant definitions of each dimension to ensure knowledge accumulation. We develop hereafter four other challenges.

First, if much effort has been spent on the quantitative measure of the construct(s), very little attention has been given to qualitative methods. (Short, et al., 2010) used computer aided text analysis techniques in an effort to establish construct validity of EO conceptualized based on Lumpkin and Dess's 1996 article (five independently varying dimensions). If the effort should be hailed, the findings leave perplex. As a set, the five dimensions led to performance in both samples studied, but risk-taking and competitive aggressiveness were negatively related to performance and autonomy was not related to performance; innovation and proactiveness were positively related to performance, although only in one of the two samples. We underscore that this conceptualization of EO dictates a relationship EO – performance of dimensions, not of the set (opposite to findings). Even more surprising, these authors note that "Our results with regard to mixed dimensionality and non- findings *vis-a`-vis* entrepreneurial orientation dimensions and performance are not surprising and are consistent with findings in this research stream" (Short et al., 2010:339). Can this study be used to support, for example, construct validity for another conceptualization of EO? In our opinion, no, because, for example in the Covin and Slevin's conceptualization, proactiveness and competitive aggressiveness are synonymous. Each individual dimensions of EO (three or five) is still subject to debate, and rigorous research can usefully contribute to clarification.

Next, these dimensions can be investigated by alternative means than the scales suggested by recent research (Covin & Wales, 2012) and related below (D. W. Lyon, G. T. Lumpkin, & G. G. Dess, 2000). Miller (2011:879) suggests: "In the realm of entrepreneurial *behavior*, scholars might develop objective indicators for each of the components of EO (Miller & Le Breton-Miller, 2011)." He gives the example of secondary data such as fund allocation per investment, unsystematic risk indicated for example by share price fluctuations, innovation indicated by R&D expenditures, patents, and patent citations. New market initiatives can be reflected in the percent of sales going into new markets.

Further research can adapt variables to context or desired outcome to generate insights with practical results and which are more cumulative and stable, for example risk taking in resource accession or in financing, proactiveness in global resource leveraging, and clearly defined types of innovation (Miller, 2011:879).

According to the conceptualization of EO adopted, additional or alternative dimensions can be added. Covin and Lumpkin (2011:868) suggest exploring dimensions related to change or adaptation. Context can be considered through behaviors (dimensions) valued in different cultures.

The study of firm-level entrepreneurial behaviors carries also a specific challenge, that of multiple levels to study. As we have demonstrated, the firm-level phenomenon is the consequence of the action of individuals or teams, which differ according to the conceptualization of EO espoused. Thus, we should also focus scholarly attention on the identification of these actors, and the dynamics of action – interaction with the firm level. Several models of the entrepreneurial firm have been offered, we refer our readers to (Randerson & Fayolle, 2011) for a comparison of these models.

Attain conceptual coherency

The conceptual domain and definition of EO and of each of its dimensions is of great importance, as a clear definition 1) is necessary to establish the validity of the measures, and 2) enables the constitution of a body of knowledge (George & Marino, 2011: 993). As noted previously, there are at least four main conceptualizations of EO as firm-level entrepreneurial behavior, and as a "social construction" it is up to the scientific community to agree upon the accepted conceptualization(s). In this effort to re-assess our domain, the priority for the EO scholarly community is rigor in the conceptualization chosen, and the coherence definition – conceptualization – measure, in the dimensions and the construct.

Clarification can take two paths. The different conceptualizations can develop separately. In this case, scholars will need to be particularly attentive to embrace the same definition of the construct and each of the dimensions and to build on knowledge based on the same conceptualization. Each stream of research could construct its own body of literature, common assumptions, and distinctive traits (including a name enabling to distinguish it from other conceptualizations). Conversely, (George & Marino, 2011:995) suggest to view EO as a family of research, articulated around the three dimensional independently varying conceptualization of firm level entrepreneurial behavior. Starting from this conceptualization, dimensions can be added (Covin & Lumpkin, 2011) or this three dimensional construct can be tested in other contexts (Covin & Lumpkin, 2011; Miller, 2011). In this case, we can attribute the term "EO" *only* to this three dimensional independently varying conceptualization of firm level entrepreneurial behavior in a realistic philosophy; any other conceptualization should be coined with another term, eventually "EO + qualifier" (e.g. "Social EO", "Family Business EO", “International EO”); this effort will greatly clarify the EO landscape. For a review of corporate entrepreneurship in Family Business, see the research note by (Sciascia & Bettinelli, 2012)

Question for Danny Miller: it is inadvertently that your work gave birth to “EO” – how would you like to name the conceptualization born in 1983? EO sounds good to me.

Towards coherent measurement frameworks?

Our developments lead us to suggest that EO research is entering a new era, one of questioning, re-assessing, and greater rigor. Recent research has shown the importance of establishing attentively the conceptual definition and the nature of the relationship between EO and its dimensions, to then ensure that the measurement model is consistent with the conceptual definition adopted. These depend on the philosophy of science under which we position our research.

EO research is embedded in a positivist philosophy of science. Reflective measurement models are usually more appropriate in this case (Covin & Lumpkin, 2011; Covin & Wales, 2012). EO is a latent construct, and as such can be assessed within measurement models (which specify relationships between constructs and their measures or “items”) as well as embedded within structural models (which specify relationships between different latent constructs). Reflective measurement of EO faces specific challenges. (Covin & Wales, 2012) admit “ A theoretical compromise incurred when the most commonly employed (reflective) EO scale is used (i.e., the Miller/Covin and Slevin [1989] scale) is that the assumption of EO’s unidimensionality, while simplifying measurement of the construct, precludes capturing the various gestalts that may form among EO’s sub-dimensions (Lumpkin & Dess, 1996).” Capturing the differences among the sub-dimensions was also the intention of Miller (1983).

These authors (Covin & Wales, 2012) propose four measurement models. First, the Miller/Covin and Slevin (1989) scale, where EO is measured as a first-order reflective construct. This is debatable because reflective measurements assume that the effect indicators have the same antecedents and consequences, which is not the case for innovation, proactiveness, and risk-taking.

Second, an alternative first-order reflective EO scale corresponding to the interpretation these authors have of Miller's (1983) work. We have already noted that Miller's intention (Miller, 1983, 2011) was to scrutinize the paths to innovation, risk-taking, and proactiveness, and that these dimensions can be more or less present. The scales produced by Covin and Wales (2011) include reference to the three dimensions in each item ("risk taking, innovativeness, ***and*** proactiveness").

Third, the (Hugues & Morgan, 2007) EO scale comprises five separate first-order reflective scales pertaining to the EO sub-dimensions proposed by Lumpkin and Dess. It recognizes the multi-dimensionality of Lumpkin and Dess' conceptualization, yet is not formative. EO is deliberately treated as a disaggregated set of constructs in order to study the independent effects of these sub-dimensions on firm performance. Here, the five dimensions of EO based on Lumpkin and Dess's article (1996) are themselves distinct constructs, their relationships with unique antecedents and consequences can be studied. This can also be useful to assess variations in antecedent-to- dimension or dimension-to-outcome relationships over time.

Fourth, a "Type II" second-order formative EO scale (i.e., reflective first order, formative second order) based on the item pool generated by Hughes and Morgan (2007) and constructed using the previously-described procedure advocated by (Diamantopoulos & Siguaw, 2006) could be appropriate to create latent factors which would then be treated as formative indicators of the second-order EO construct. This formative approach would enable the verification of the proportional effects of the five factors on the theoretically linked, reflective-type outcome variables that are used to estimate the model (if the indicators do not have proportional effects on the outcomes, they could be eliminated from the construct). It is important to note (Covin & Wales, 2012) that " The EO construct as measured according to this specification becomes a different construct—i.e., has a different empirical meaning—when different reflective outcome variables are used to estimate the model." (Covin & Wales, 2012: 697)

We add a fifth measurement model. Covin and Wales (2012: 691) note that to be consistent with Miller's conceptualization, a "Type I" second-order factor specification measure is appropriate, i.e. reflective first-order, reflective second-order, where EO is reflected in innovativeness, risk taking, and proactiveness, and these constructs, in turn, are reflected in their specific indicators". More specifically, the component variables of innovativeness, risk taking, and proactiveness would first be assessed through their corresponding measures, then these three components would themselves be assessed as reflective indicators of the underlying second-order construct of EO.

Correctly aligning the philosophy of science, conceptual domain, and measurement methods is important. As George and Marino (2011:1002) advocate "A recent Monte Carlo simulation examining the effects of model misspecification on EO specifically found that incorrectly modeling the construct can inflate structural parameter estimates by over 240% and critical ratios by up to 68%".

Conclusion

Although EO as an expression of firm-level entrepreneurial behavior is needed, EO research has suffered from the obsession with measurement issues. It achieved the status of recognized theory without sufficient scientific debate. To date, we have endeavored to understand what firm-level entrepreneurial behavior *is* by measuring how much of it a firm *has*. It is important and urgent to better understand the phenomenon under scrutiny.

We have shown that Miller's initial intention was not to define what firm-level entrepreneurial behavior is, but established this composite catchall to identify what leads to this result. This first conceptualization has been understudied, because largely misunderstood. Identifying Miller's construct as separate unique conceptualization (instead of groundwork leading to an alternative conceptualization) offers interesting research perspectives, for example identifying the organizational, contextual, or motivational factors that lead to firm-level entrepreneurial behaviors qualified by the three initial dimensions of EO, or studies establishing strategic configurations (Randerson, Bettinelli, & Fayolle, 2012). As an outcome, this conceptualization leaves room for the independent study of the antecedents (processes, practices and decision-making activities that can differ) but does not replace (is not a proxy) for the study of these organizational factors, as it is the case in the other three conceptualizations. It also admits being *one* possible organizational outcome – challenging scholars to identify others.

The works of Kreiser, Marino, and colleagues come the closest to continuing this stream, in that they develop a three-dimensional, independently varying construct, establishing partial cross-cultural validity (Hansen, et al., 2011; Kreiser, et al., 2010; Kreiser, et al., 2002) as well as a theoretical model of the EO-environment-structure-performance relationship (Kreiser & Davis, 2010). It remains, although, a distinct construct in that these dimensions represent no longer an outcome designed at identifying how to achieve that outcome, but the strategic decision-making processes themselves, the outcome being firm performance.

The works of Covin and Slevin (1991), intending to operationalize Miller's conceptualization, created inadvertently an alternative conceptualization, for two reasons. First, to be qualified as entrepreneurial (having an entrepreneurial strategic posture), the three dimensions covary, and these dimensions represent a strategic orientation per se – "ultimate dependent variable is firm performance" (Covin & Slevin, 1991:9). As noted previously, it is this conceptualization that has received the greatest scholarly attention, mainly for purposes of 1) establishing measure validity, and 2) establishing the relationship to performance. We also underscored the limitations and inconsistencies of these studies.

Finally, Lumpkin and Dess's five dimensional independently varying construct represents the processes, practices, and decision-making activities that lead to new entry (Lumpkin & Dess, 1996:137), and ultimately performance. Thus, the initial construct is modified in three ways, it is directly a proxy for these organizational activities (instead of trying to identify them); it concerns only the activities leading to new entry, and it admits five dimensions.

The EO scholarly community has yet to identify and eventually come to an agreement on what firm-level entrepreneurial behavior actually is; we face this challenge at several levels.

Table 2. Challenges of future research

Theoretical	Conceptual	Emprical
- For the firm, behaviors are embodied by actions: what actions can be considered as manifestations of entrepreneurship (actions are not outcomes)? - If EO represents the processes, practices, and decision-making activities, why not study these directly, establishing content and exploring context? - These firm-level actions are the result of individuals: how does the dynamic of action-reaction actually work?	- To date, there are four recognizable concepts that navigate under the "EO" flag: does each have a specific use? - Researchers will need to be attentive to respect the common assumptions of the conceptualization they embrace, as well as the definitions (of the concept, the dimensions): this will be an arduous task, as much of the literature to date has built on the assumption of a unique concept, not integrating the differences (definition, scales, assumptions)	- The scales most commonly used are do not measure what they were intended to measure -Alternative measures have been neglected (e.g. secondary data, qualitative research) - Further research needs to be attentive to correctly align philosophy of science, concept definition, and measurement methods

The much-needed debate on firm-level entrepreneurial behavior can begin with the question: what behaviors can be qualified as entrepreneurial? One (or several) of the existing EO concepts can be rigorously developed. We have identified three other existing research streams that can constitute alternative or complements to EO research. The rigorous, fruitful study of organization-level entrepreneurship has been occulted by the study of EO and the obsession of its measurement. We have shown that important aspects of this complex phenomenon have been left aside, opening new and exciting avenues of future research.

Although the fruit of a liberal understanding of Miller's 1983 work, EO research has offered timely, interesting, and important contributions to the understanding of firm-level entrepreneurial behavior. With this critical approach, we have endeavored to shed light upon the blind spots and gaps the fad for this topic has created, in the domain of EO strictly speaking as well as the larger domain of firm-level entrepreneurial behavior. Our suggestions hope to enhance the completeness of research on EO and this larger domain, and increase its impact.

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A taxonomic approach to entrepreneurial orientation

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A taxonomic approach to entrepreneurial orientation

Entrepreneurial orientation (EO) has been the object of stimulating theoretical debate for over 30 years. Some scholars adopt a unidimensional view, where the three dimensions of innovation, risk-taking, and proactiveness covary, and setting firms on a continuum with on one polar end the bureaucratic or non-entrepreneurial firm and on the other the entrepreneurial firm (e.g. (Covin & Slevin, 1991). Others adopt a multidimensional view, where these same three dimensions may vary independently (e.g. (Kreiser & Davis, 2010; Kreiser, et al., 2002; Miller, 1983, 2011), while others yet add the dimensions of competitive aggressiveness and autonomy (Lumpkin & Dess, 1996).

The pursuit to identify the relationship between EO and firm performance has also attracted much scholarly interest (Rauch, et al., 2009). This relationship may depend on different internal and external variables: the knowledge produced to date does not form a homogeneous body upon which we can build, because the studies are based on conceptualizations that are fundamentally different and utilize different scales. In the frenzy to develop knowledge, EO has been deviated from its initial intent (Miller, 1983, 2011; Randerson & Fayolle, 2012). In fact, his intent was to identify how the firm type (according to Mintzberg) influenced the entrepreneurial process. His calls for configurational research (e.g. (Miller, 1996) have gone ignored.

We propose here a configurational analysis, directly derived of Miller's 1983 work, which is based on the interaction of the variables most often found in the literature, and reminded by Miller (2011). This approach allows for the generation of types to propose an explanation that can reflect the complexity of situations. Configurational research responds to three research goals: describe, explain, and predict (Short, Payne, & Ketchen Jr, 2008). Elaborating groups of firms that are similar enables the description of the salient traits of each group (G.G. Dess, Lumpkin, & Covin, 1997) and gives access to a better understanding of organizations through the study of intrinsically homogeneous groups. Configurational research can thus explain organizational success and failure, as some configurations fit better than others in a given context. Finally, it can ideally predict organizational performance under similar circumstances.

Several scholars have suggested configurations to better understand organizational entrepreneurship (“*ad nauseum”* by Miller, 2011:3): by type of organization (Miller, 1983), by environment (Kreiser & Davis, 2010; Shaker A. Zahra, 1993b), by the activity of the top manager (Merz & Sauber, 1995). Specifically related to EO and performance or growth, configurations have been studied in family firms (Casillas, Moreno, & Barbero, 2009) related to involvement, according to EO/strategy/environment (G.G. Dess, et al., 1997), EO/strategy/industry/growth (Covin, Slevin, & Covin, 1990), access to capital/environment/EO (Wiklund & Shepherd, 2005); but to our knowledge and despite the call for such research by Short et al. (2008: 1071) none have used a large set of variables found in the literature to produce a taxonomy of firms according to their EO, then to identify the salient characteristics of each type.

The article proceeds as follows. In the next session we review the literature of the variables selected to characterize the firms: first EO to form our clusters, then the following characterizing variables: top manager’s personality, organizational structure, size and age, organizational culture, environment, and perceived performance. After indicating our methodology, we go on to present our clusters, their specific characterizations and their relation to performance. We discuss our results and offer a brief conclusion.

LITERATURE REVIEW

Many scholars have endeavored to study EO, its components, and its relationship with performance, resulting in a large body of literature. To characterize our groups, we included in our study the main variables found in this literature: personality of the top manager, organizational structure, size and age of the firm, organizational culture, environment, and finally perceived performance.

Cluster formation according to the Entrepreneurial Orientation

In his 1983 seminal article, D. Miller measured the entrepreneurial behavior of the firm according to the dimensions innovation, proactivity, and risk-taking (Miller, 1983). This article gave later birth to the "entrepreneurial orientation" construct and a vast body of literature. In this 1983 study Miller deployed the components of innovation, risk taking and proactiveness as a "collective catchall" (Miller, 2011) (p. 2), positing that a firm with any one of these components entirely missing "less than entrepreneurial". Covin and Lumpkin (Covin & Lumpkin, 2011) note that the family of EO research (George & Marino, 2011) comprises two conceptualizations: the "composite dimension" (unidimensional) and the multidimensional view; the first is associated with the works of Miller (1983) and Covin and Slevin (Covin & Slevin, 1989), the second with the 1996 work of Lumpkin and Dess (Lumpkin & Dess, 1996).

Miller's initial work comprised an aggregate variable of entrepreneurship, an arithmetic average of the scores of innovation, risk-taking, and pro-activity. His intention was to observe to which extent the firm types (simple, planning, and organic) exhibited each of these dimensions, and that the dimensions had different sources (Danny Miller, 2011: 875). We note, then, that if in Miller's conceptualization all three components must be present, they need not be so *equally,* the richness of the construct is in how these dimensions appear in different contexts (Miller, 1983, 2011).

Further work in this sense was accomplished by Kreiser and colleagues. They first established empirically that the three dimensions varied independently (Kreiser, et al., 2002), and more recently (Kreiser & Davis, 2010) offered a theoretical model of how each of the three sub-dimensions of EO relate to firm performance; organizational structure and environment are included as mediating variables.

While Miller was searching for organizational configurations leading to this result (innovation, proactivity, and risk-taking behaviors on the organizational level), others were searching for the "entrepreneurial organization" strictly speaking. In this last case we are on a continuum, where on one polar end figures the entrepreneurial organization, and on the other the conservative organization (Covin & Slevin, 1991; Lumpkin & Dess, 1996; Stevenson & Gumpert, 1985).

Therefore, we understand that there is a third conceptualization of EO to document through empirical and theoretical research, a conceptualization comprised of three dimensions which can vary independently. The objective of the present study is to offer organizational configurations based on the entrepreneurial profile – how the three dimensions manifest themselves in the context of SMEs.

We start by establishing clusters of firms, based on the firms' EO. We expect the cluster analysis to produce groups of firms with different, distinct EO profiles according to the degree to which each dimension is present. In other terms, we expect the clusters to form around the dimension(s) innovation, risk-taking, proactiveness, or combinations of these dimensions (e.g. risk-taking and pro-activeness, risk-taking and innovation, pro-activeness and innovation), none of the dimensions (non-entrepreneurial) or all of them (entrepreneurial).

Secondly, we identify the causes leading to this result, contextualizing our organizational forms with the internal and external variables.

Contextualizing the clusters

The personality of the top manager

Researchers have examined the relationship between certain psychological traits of the entrepreneur and the resulting consequences on his/her firm. In his seminal study, Miller (1983) showed that in the simple firm the top manager's characteristics (locus of control, centralization, knowledge) is determinant for the understanding of the firm's entrepreneurial dynamics. Here, the top manager's traits were related to the entrepreneurship summed index. Extant research has established that the top manager's traits (locus of control, need for achievement, and generalized self-efficacy) are correlated, and related directly (locus of control) or indirectly (mediated by EO for need for achievement and generalized self-efficacy) to firm performance (Poon, Ainuddin, & Junit, 2006).

If this literature establishes that the personality of the top manager does indeed influence EO of the SME, it does not differentiate how CEO personality affects the individual dimensions of EO: this is our task.

Executives with an internal *locus of control* are individuals who believe that their success is a consequence of their actions, their capacity to control, their address (Rotter, 1966); they pursue more product innovation (Miller, Kets de Vries, & Toulouse, 1982; Miller & Toulouse, 1986a, 1986b); they are also more future oriented and tailor their approaches to the circumstances facing their firms.

« *Need for achievement* » refers to the perception an individual holds about his/her capacity of taking up a challenge to achieve personal accomplishments (McClelland, 1961, 1965). A high achiever will strive for perfection, seek to accomplish difficult tasks, dedicate more time thinking about how to outperform (Miller & Dröge, 1986). Need for achievement is related to pro-active, analytical decision-making, following market-oriented strategies (Miller & Toulouse, 1986a).

Self-efficacy is defined as "beliefs in one's capabilities to mobilize the motivation, cognitive resources, and courses of action needed to meet given situational demands" by (Wood &

Bandura, 1989) (p. 408). *Entrepreneurial self-efficacy* (ESE), "the degree to which individuals believe that they are capable of performing the tasks associated with new-venture management" (Forbes, 2005), influences also the actions that founders undertake during the course of managing their ventures. ESE influences entrepreneurial intentions (Boyd & Vozikis, 1994): the greater the ESE, the more likely the individual will actually take risks and adopt an entrepreneurial behavior. (Krueger Jr & Dickson, 1994) show that individuals who perceive themselves as competent (ESE) see more opportunities in a risky choice and take more risks.

Based on this literature, we have included the variables need for achievement, internal locus of control, and entrepreneurial self-efficacy to assess to what degree and in which manner the personality of the top manager influences the entrepreneurial dynamics of his/her firm. We expect that the top managers of innovating firms manifest a higher locus of control; those of proactive firms a higher need for achievement; and risk-taking firms a higher entrepreneurial self-efficacy. In non-entrepreneurial firms the personality of the top manager will not be significant, and in entrepreneurial firms, the CEO will possess all three traits.

Organizational structure

Burns and Stalker (Burns & Stalker, 1961) suggest setting a continuum figuring the organic organization on one end, the bureaucratic/mechanistic organization on the other. The first adapts to its environment through five factors: decentralization, technocratization, resources, differentiation, and integration. Miller's seminal study demonstrated that entrepreneurship in organic firms is determined by structure and environment (Miller, 1983).

The organic structure figures in numerous corporate entrepreneurship studies as organizational variable positively affecting the relationship EO-performance (Covin & Slevin, 1989; Naman & Slevin, 1993; Slevin & Covin, 1990), enabling the firm to exploit entrepreneurial opportunities (Covin & Slevin, 1989). Structure is usually presented as a continuum, going from mechanistic – bureaucratic to organic. Flexibility is inherent to the organic structure (Covin & Slevin, 1991; Khandwalla, 1977; Miller & Friesen, 1982, 1983). Miller's 1983 article, as well as later research (Naman & Slevin, 1993) emphasize the importance of the relationship structure – environment, and the notion of "fit". Kreiser and Davis' (2010) conceptual model encompasses EO, firm structure and environment (dynamism and hostility). In line with a well-established literature, the posit that in high-level EO firms, the organic structure will enable the firm to seize the opportunities of the munificent and dynamic environment, and when the levels of all three dimensions are low, a mechanistic structure will ensure firm survive in stable and hostile environments. They go on to suggest that "mixed" structures will be present in environments that are stable and munificent as well as those that are hostile and dynamic, when the levels of EO are moderate to high.

Conversely, Covin & Slevin observe that performing firms can react to environmental hostility by creating administrative structures that facilitate strategic repositioning (Covin & Slevin, 1989:76). Messeghem (Messeghem, 2003) (p.36) demonstrated that an organization that adopted a "managerial logic" can also maintain an entrepreneurial dynamic. Miller (2011:12) asks the question "when and how do structural routines and standard procedures actually *foster* EO?" We add: how can firm structure relate to the dimensions of EO, independently considered?

A longstanding literature links innovation to the organic structure: innovation is the fruit of individual creativity, and the organic organization furnishes support for this (Lumpkin & Dess, 1996). The formalism and hierarchy of mechanistic organizations stifle innovation (Burns & Stalker, 1961), through bureaucratic actions. This consensus is currently being questioned (De Burcharth & Ulhoi, 2011), in particular in larger firms innovation can promoted through formalized processes (R. Kanter, 1985).

Proactive behaviors are also facilitated in the organic structure, the inherent flexibility enables opportunity pursuit through "rapid organizational response to changing external forces in unpredictable environments, while 'mechanistic' structures are better suited to predictable environments where rapid organizational responses are not typically required" (Covin & Slevin, 1989: 77).

Finally, risk-taking behaviors are also more positively associated with firm performance when firms utilize organic structures rather than mechanistic ones. According to Khandwalla (1977:18) "risk-taking managements usually seize opportunities and make commitments of resources before fully understanding what actions need to be taken. Unless management is flexible, the organization will not be able to adapt itself to the evolving situation".

We expect our clusters to show different organizational structures: innovating firms will be mechanistic, whereas proactive firms and those who show risk-taking as dominant dimension will have adopted an organic type. Non entrepreneurial firms will suffer from a mechanistic structure, whereas entrepreneurial firms will adopt a mixed structure.

Size and age of the firm

Firm size and age influence the degree and nature of firm-level entrepreneurship (Miller, 1983; Stevenson & Jarrillo-Mossi, 1986), and mediate the relationship EO – performance (Lumpkin & Dess, 1996). In smaller firms, the effect of EO on performance is greater (Rauch, et al., 2009). Su et al. (Su, Xie, & Li, 2011) find that the relationship between EO and performance is inverse U-shaped in new ventures but positive in established firms, but we have yet to understand the specific relationships between firm size and age and the individual dimensions of EO.

The tendency towards inertia of larger organizations has been the starting point of many studies (Hambrick & Crozier, 1985; Steffens, et al., 2009; Stevenson & Jarrillo-Mossi, 1986). An abundant literature establishes that entrepreneurship gets stifled as the firm grows (Stevenson & Jarrillo-Mossi, 1986), and another addresses the ways that larger firms can re-ignite the entrepreneurial flame: Zahra and his colleagues (Shaker A. Zahra, Kuratko, & Jennings, 1999) point out that: "Some of the world's best-known companies had to endure a painful transformation to become more entrepreneurial. They had to endure years of reorganization, downsizing, and restructuring. These changes altered the identity or culture of these firms, infusing a new innovative spirit throughout their operations…change, innovation, and entrepreneurship became highly regarded words."

Perceived need explains continued entrepreneurship in small firms (Davidsson, 1991), he finds that the need for growth is greater when the firm is less profitable, younger, managed by a younger manager, and smaller. In these firms, continued entrepreneurship is less dependent on ability or opportunity: proactivity will be the key dimension for smaller and younger firms.

Younger firms suffer from the liability of newness: they lack strategic resources, legitimacies and social ties, and low formalization of roles (Su et al, 2011:561).

Innovation requires slack resources (Covin & Slevin, 1991; G. G. Dess, Lumpkin, & McGee, 1999; Miller & Friesen, 1982, 1983). Smaller and younger firms often lack resources. In addition, larger and older firms will be better able to acquire and integrate the knowledge necessary for innovating activities (Shaker A. Zahra & George, 2002; Shaker A. Zahra, Nielsen, & Bogner, 1999).

Start-ups (very young firms) will score higher on this risk-taking dimension. In established firms (Walls & Dyer, 1996) find a positive relationship between corporate risk tolerance and the size of the firm, meaning that as the firm grows it will be more risk-inclined, mainly because it has the resources to undertake larger, more riskier projects.

Taken together, these developments lead us to expect that proactive firms will be younger and smaller, risk-taking firms will be very young (start-ups) or older, and innovative firms will be older and larger. Age will not be related to non-entrepreneurial or entrepreneurial firms.

Organizational culture

The major models of corporate entrepreneurship include the variable « culture » (Covin & Slevin, 1991; Ireland, et al., 2009; Lumpkin & Dess, 1996; Shaker A. Zahra, 1993a). Researchers have conceived and validated an assessment tool which measures the environment conducive to corporate entrepreneurship (Hornsby, Holt, & Kuratko, 2008; Hornsby, et al., 2002; Kuratko, et al., 1990). For these authors, “corporate entrepreneurship centers on re-energizing and enhancing the ability of a firm to acquire innovative skills and capabilities” (2002:255), this tool will not apprehend the diversity of environments conducive to the dimensions of EO taken individually.

To capture the difference among the dimensions, we chose to use the model initially proposed by (Rohrbaugh, 1981) and (Quinn & Rohrbaugh, 1983), later developed by (Cameron & Quinn, 2006), as a conceptual model and instrument to measure firm culture (*Organizational Culture Assessment Instrument)* through four types of culture: hierarchical, market, clan, and adhocratic cultures.

The hierarchical culture is characterized by the structuration and formalization of work. Focused on internal stability, the rules and values of the hierarchical culture are associated with those of the conservative strategic posture. Formal production procedures and control mechanisms are valued; it is based on a mechanistic structure which in general does not induce entrepreneurial activities.

The market culture is results-oriented, through the maximization of production. The main values are productivity, competitiveness, financial return, rational decision-making and success. It is associated with firm values and functions that are market-related, i.e. those related to transactions with suppliers, customers, partners, and employees (Cameron & Quinn, 2006). Market-oriented and valuing competitiveness and success, the market culture can be associated to proactiveness.

A friendly work atmosphere and sharing demonstrate a clan culture. The main values are here flexibility, faith in human potential, commitment and human resource development. The goal of this type of firm is to develop team spirit, the sense of belonging, and participation. This type of atmosphere is conducive to learning and creativity. According to Pearce & David (1983) and Jennings & Lumpkin (1989), the innovating firm is characterized by a participative management style.

The adhocratic (or entrepreneurial) culture is that which values dynamism, entrepreneurship, creativity, and is focused on the external environment (Dension & Spreitzer, 1991). Here, the decision-maker is a visionary, an innovator, and a risk-taker. The firm encourages creating new products and services and its long term objective is to favor growth and acquire new resources. The entrepreneurial spirit, the entrepreneurial culture, entrepreneurial leadership and the strategic management of resources induce innovation, a potential competitive advantage, and the creation of wealth (Ireland, Hitt, & Sirmon, 2003).

These reasons lead us to believe that proactive firms will adopt a market culture, innovative firms the clan culture, and risk-taking firms the adhocratic culture. Non-entrepreneurial firms will suffer from a hierarchical culture, and entrepreneurial firms will value the adhocratic culture.

The Environment

The way the top management perceives the environment influences the way they frame the way they define the difficulties they face and the hierarchy of the actions they will take (Shaker A. Zahra, 1993b; Shaker A. Zahra & Pearce II, 1990). The relationship between corporate entrepreneurship and the firm's environment has often interested scholars (Shaker A. Zahra, 1993a). The variable environment is found in several models (Guth & Ginsberg, 1990; Ireland, et al., 2009; Kreiser & Davis, 2010; Lumpkin & Dess, 1996) and empirical studies (Green, Covin, & Slevin, 2008; Lumpkin & Dess, 2001; Shaker A. Zahra, 1991, 1993b; Shaker A. Zahra & Covin, 1995) often mediating the relationship EO-performance.

A *dynamic environment* is one in which change often occurs, as a consequence of technological evolution, competition, regulations or other external forces (Shaker A. Zahra, 1993b) (p.322). The rhythm of change and innovations in an industry is what matters, as well as the uncertainty or predictability of the competitors' or customers' behavior (Miller & Friesen, 1983)(p.222). This dynamism creates opportunities for the firm in its market or those nearly related. On the polar end of this continuum, stable environments are those which change little. An environment is considered *hostile* when unfavorable forces to a firm's activity cause radical change in the industry or intensity of the competition (Shaker A. Zahra, 1993b) (p.324), whereas environmental munificence is characterized by available resources and the quantity of opportunities present in this specific environment.

If environment is often considered by pairs (stable/hostile; dynamic/munificent) Kresier and Davis (Kreiser & Davis, 2010) offer a theoretical framework in which these two traditional pairs are completed by two others: stable/munificent and dynamic and hostile. This context needs to be further studied, because as creative destruction is part and heart of entrepreneurship, markets are disrupted more or less regularly and it is precisely this transition that should be scrutinized (see for example, the cyclical wave model by (Wales, et al., 2011), where EO pervades an organization cyclically, in response to internal or external triggers).

Product innovation is more useful and more usual in dynamic environments than in stable ones (Kreiser & Davis, 2010; Miller, 1983, 1988; Shaker A. Zahra, 1993b); without innovation or product pioneering, firms in dynamic environments face sales and market share loss (Miller, 1988). Pioneering activities and radical product technologies (Shaker A. Zahra, 1996) as well as R&D strategies (Shaker A. Zahra & Bogner, 2000) are associated with dynamic environments. Innovation will be more prevalent in munificent environments than in hostile ones. The opportunities and resources characterizing these environments encourage investing in innovation; in hostile environments firms (Shaker A. Zahra, 1996) "may be reluctant to invest heavily in developing new technologies because hostility erodes profit margins and reduces the resources available for innovation." This negative relationship between innovativeness and hostility is empirically established (Shaker A. Zahra & Bogner, 2000); these authors note that this is "consistent with theoretical expectations that intense hostility in these markets might make aggressive gambling of new ventures' limited financial resources by offering radically innovative products a poor strategic choice" (p.165).

Proactiveness is also related to environmental dynamism, characterized by rapid change, firms in these environments need to be proactive and actively search for opportunities (Kreiser & Davis, 2010) to secure competitive advantage for the firm (Shaker A. Zahra, 1991). Pioneering activities are more usual and more beneficial (Shaker A. Zahra, 1996) in dynamic environments, because "by reaching the market first and establishing its technology as the standard, the pioneer can dictate the rules of competition" (p.193). The proactiveness –dynamism link is positively related to sales growth (Lumpkin & Dess, 2001). Munificent environments also encourage proactive behaviors (Kreiser & Davis, 2010), since they are rich in opportunities (Miller & Friesen, 1982) and resources (Lumpkin & Dess, 2001).

Risk-taking behaviors are also encouraged in dynamic environments, failing to do so will result in market share loss and decreasing industry standing (Covin & Slevin, 1991; Miller, 1983). Khandwalla (1977) finds that environment matters: the relationship between organizational risk-taking and firm performance is stronger in dynamic environments. This author notes that, in order to cope with the turbulence of dynamic environments, organizations need to make bold, risky strategic decisions. This said, in highly dynamic environments, risk-taking is less effective: (Begley & Boyd, 1987) found that the relationship risk-taking performance takes the form of an inverted U, meaning that firms which take moderate risks outperform those with very low or very high levels of risk-taking behavior. Risk-taking is also encouraged in munificent environments, the greater resources offering the possibility of higher payoffs; whereas in hostile environments firms tend to avoid unnecessary risks that may endanger the firm (Shaker A. Zahra & Garvis, 2000).

We understand that innovative, proactive, risk-taking and entrepreneurial firms will evolve in environments which are dynamic and munificent, whereas non-entrepreneurial firms prevail in stable and hostile ones.

Performance outcomes

Performance

An abundant literature, conceptual and empirical, studies the relationship between the EO of an organization and its performance (see Rauch et al, 2009 for a meta-analysis of the empirical studies). In the 51 studies covered in this meta-analysis (Rauch et al, 2009) perceived performance was adopted as unique dependent variable for 21 studies whereas 11 studies used perceived and financial and non-financial performance. We adopted perceived performance in this work, declined in three dimensions: growth in sales, return on investment, and growth in the number of employees.

METHODS

Data

We tested our predictions using cross-sectional data from French companies. To shed light upon this question, and to insure commensurability of our results with those of previous studies, we chose a quantitative methodology. Our questionnaire was conceived using exclusively scales

validated and widely used, and sent to members of two chambers of commerce in France (Beaujolais and Nord-Pas de Calais), partners to this study.
The selection of a sample from the lists of companies belonging to Chambers of Commerce is a well-established practice in studies of SMEs and entrepreneurship (Dandridge & Sewall, 1978; Fogel, 2001; Korunka, Frank, Lueger, & Mugler, 2003; Lasher & Grashof, 1993; Sorenson, Folker, & Brigham, 2008).

The 2 Chambers of Commerce have the quality of belonging to regions in which economic activity in the manufacturing and services sectors are above the French average (Insee, 2009b). Additionally, they belong to the top 4 Regions in terms of total GDP (Insee, 2009a), and therefore have similar economic development features. The companies retrieved with this sampling technique make for a sample that is close to the attributes cited by Miller (2011:881) according to whom regional and national "laws, economies, and levels of institutional development may vitally condition the nature of entrepreneurship (G. Johns, 2006) and context specificity may limit generality but may enhance application and generate more fine-grained and more empirically valid knowledge. Such context-specific studies may be of great interest to practitioners and scholars alike".

The data was collected by mailed questionnaire, addressed to top managers of these French SMEs. Our initial sample included 2,000 firms, we collected 163 completed questionnaires, for a response rate of 8,15 %. We collected data from June 2010 through January 2011.
This response rate, while low in general is consistent with SME mail surveys asking entrepreneurship and performance data (Entrialgo, 2002; Freel, Carter, Tagg, & Mason, 2012; J.C. Hayton, 2003; Heavey, Simsek, Roche, & Kelly, 2009; Kundu & Katz, 2003; Simsek, 2007).

There may be several reasons for this low response rate. Foremost among these is the extreme time pressure SMEs top managers face, limiting their time to respond (Dennis Jr, 2003; Kundu & Katz, 2003). T-tests indicated no significant difference between respondents and non-respondents in terms of age and size.

Because the variables of this study were obtained from a single key informant per firm, we tested for common method bias using the Harman one-factor test (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003; Podsakoff & Organ, 1986). This test, the most widely known approach for assessing Common Method Variance (Malhotra, Kim, & Patil, 2006), is based on the notion that, if survey data generate multiple factors and the first factor does not explain disproportionately higher variance than other factors, then source bias is not a major problem (Podsakoff and Organ 1986, p.536). All the variables used in this paper were entered into an exploratory factor analysis. In particular, we performed a principal component factor analysis with varimax rotation; as a result, we obtained five factors with eigenvalues of 1.0 or higher; the first factor explains 22,51% of variance, indicating that common method bias was not of great concern (Podsakoff and Organ 1986). Additionally, in the case of SMEs it is likely that the views of a single key respondent may reflect those of the firm (D. W. Lyon, G. Lumpkin, & G. G. Dess, 2000).

Responding firms averaged 90,71 in number of employees, on average are 35,74 years old, and are involved in manufacturing (62%) and services (38%). Respondents declared to have, on average, a quite long work experience: 23 years.

Measures

Our measures were adapted from existing and validated scales from the literature wherever available. Prior to data collection, the content validity of the instrument was established by grounding it in existing literature.

Detailed information on each scale is provided in the Appendix. For the variables other than EO (for which Knight in 1997 (Knight, 1997) proposed a version in the French language), the scales were translated into French. To enhance translation equivalence, we had the original English questionnaire translated into French by one person and then back-translated into English by a second person. The two expert translators reconciled any differences that emerged (Miller, 1987). We measured variables in the following manner.

Entrepreneurial Orientation. To assess the EO of the firm, we used the eight item variation of the Miller (1983) and the Covin & Slevin (1989) scale in the version translated and validated cross-culturally by Knight (1997). Cronbach's coefficient alpha (α) for the 8 items was .69.

Personality of the top manager. We considered the personality of the top manager through the constructs of locus of control (8 items scale by Rotter, 1966; α=0,59), need for achievement (4 items scale by (Robichaud, McGraw, & Roger, 2001); α=0,76), and entrepreneurial self-efficacy (16 items scale by (De Noble, Jung, & Ehrlich, 1999); α=0,89).

Organizational structure and culture. Organizational structure was measured with the scales by Khandwalla (1977) opposing mechanistic (3 item scale, α=0,72) and organic (4 item scale, α=0,70) types. To discern organizational culture, we adopted the scale by (Cameron & Quinn, 2006), from the Organizational Culture Assessment Instrument, which differentiates adhocratic (6 item scale, α=0,87), market (6 item scale, α =0,90), group (6 item scale, α=0,91) and hierarchical cultures (6 item scale, α=0,87).

Environmental hostility and dynamism. Environmental hostility (5 item scale, α=0,78) and dynamism (5 item scale, α=0,74) were measured with the scales used by (Green, et al., 2008).

Consistent with the cited literature, multiple items gauged respondent's perceptions of the external environment.

Reliability was operationalized using the internal consistency method that is estimated using Cronbach’s alpha (Cronbach, 1951; Nunnally, 1978). As recommended by these authors, an alpha value of 0.60 was used in this study as the cut-off value. As can be seen from Appendix Table A1, Cronbach’s alpha values of the factors were well acceptable, ranging between 0.59 and 0.91.

Performance. Finally, we measured perceived performance over the past three years, asking the top manager if it highly increased (+15%), increased (+1% to +14%), stagnated (0%), decreased (-1% to – 14%), highly decreased (-15%). Firm performance was measured in terms of Return on Investments (ROI), growth in sales and in number of employees. While we recognize that this is a subjective indicator of firm performance we have opted for it because for SMES it is difficult to retrieve public available and reliable information on financial data (Sapienza, Smith, & Gannon, 1988) and relying on subjective measures can be a good solution (Entrialgo, 2002; J.A. Pearce II, Robbins, & Robinson Jr, 1987; Smart & Conant, 2011; Tajeddini, Trueman, & Larsen, 2006). Additionally, subjective performance measures have been shown to be reliable and generate results consistent with objective measures of performance (G.G. Dess, et al., 1997; G.G. Dess & Robinson Jr, 1984), and have been used in the majority of the studies linking EO to performance (Rauch, et al., 2009).

Methodology

Cluster analysis, is a multivariate technique whose the main function is to group objects based on the characteristics they have (Hair, Anderson, Tatham, & Black, 1995). Cluster analysis is a commonly used statistical method in different disciplines when classification of subjects is the objective. It has been used in order to develop taxonomies in strategic and entrepreneurship research (see for example (Avlonitis & Salavou, 2007; Kabanoff & Brown, 2008; Stanley F. Slater & Eric M. Olson, 2001; Shaker A. Zahra & Jeffrey G. Covin, 1993). Cluster analysis has played a key role in research for the reason that it allows for the inclusion of various variables as sources of configuration description and thus enables potentially rich descriptions (Ketchen & Shook, 1996).

Notwithstanding its strengths, cluster analysis has some limitations. In particular, clusters may rely on researchers' decisions and may not reflect real differences but simply be statistical artefacts (Thomas & Venkatraman, 1988). We took into consideration these limitations and applied a hierarchical cluster procedure, based on the Ward's method, one of the most commonly used (Hair, et al., 1995; Ketchen & Shook, 1996). In Ward's method the distance between two clusters is defined as the sum of squares between the two clusters summed over all variables; at each step in the clustering process, the within-cluster sum of squares is minimized over all partitions obtainable by merging two clusters from the earlier step (Hair, et al., 1995). We first used the Ward method to create clusters (Shaker A. Zahra, 1993b) based on different entrepreneurial orientation variables.

The second step entailed examining variations among the clusters in terms of organizational structure, size and age, corporate culture, environment and entrepreneur's traits. We did this by using non-parametric tests and post hoc analysis[7] to characterize each cluster according to the variables most often found in the literature.

[7] Since some of the ANOVA assumptions have been violated by our database we use non parametric tests such as Kruskal-Wallis test and post-hoc analysis (Weinberg & Abramowitz, 2008).

RESULTS

Cluster formation

We used Cluster Analysis to create homogeneous groups in terms of Entrepreneurial Orientation. Correlations among the measures of Entrepreneurial Orientation (innovativeness, risk taking, proactivity) were significant, ranging between .23 and .37, thus supporting the relative independence of these dimensions.

One of the key issues in cluster analyses is the definition of the appropriate number of groups. The general idea is to have a balance between the two key properties of clusters which are : external isolation and internal cohesion (Cormack, 1971). A hierarchical cluster analysis procedure was used to determine the number of clusters since hierarchical cluster algorithms are considered superior when there is no prior specification or initial starting point (Romesburg, 2004). The Ward's method with squared Euclidean distance measure, considered as one of the superior hierarchical cluster methods, was adopted (Punj & Stewart, 1983). The selection of the final cluster solution was guided by two elements. First, we followed (Lehmann, 1979) and, based on the sample size (N=163), considered that the number of reliable clusters is in the N/30 to N/50region. In our sample the number of reliable clusters is therefore within the three-to-five cluster range. Second, we examined variations in clustering coefficients to detect radical variations and instability in the results (Hambrick, 1983 (a), 1983 (b), 1984). These steps, and the analysis of the agglomeration schedule and of the dendogram lead us to a four-cluster solution[8]. As our clusters violate the normality and homogeneity of variance assumptions of one-way ANOVA, we applied a non-parametric test (Kruskal-Wallis) and post-hoc analysis.

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[8] We did not use clustering methods that allowed us to define *a priori* the numbers of clusters we wanted. For example we could have imposed in our cluster analysis that the number of clusters had to correspond to 8, which should represent all the possible combinations available from the three main dimensions. We did not do this because we did not want to impose, in our data analysis, any theoretical conceptualization. Instead, we wanted the conceptualization to emerge from our data.

The Kruskal-Wallis test (H-test also codified as H(2)) is an extension of the Wilcoxon test and can be used to test the hypothesis that a number of unpaired samples originate from the same population. Factor codes are used to break-up the (ordinal) data in one variable into different sample subgroups. If the null-hypothesis, being the hypothesis that the samples originate from the same population, is rejected ($P<0.05$), then the conclusion is that there is a statistically significant difference between at least two of the subgroups. To see *where* the clusters were statistically different, we performed a test for pairwise comparison of subgroups according to Conover (1999).

In Table 1 we present the profiles of the four clusters, the first eight columns contain, for each cluster, means and medians, then we report Conover results and the Kruskal-Wallis test results. The Krukal-Wallis tests indicate that there was a statistically significant difference between the different clusters in terms of innovativeness (H(2)=120,42, $P<0.01$); risk taking (H(2)=104,67, $P<0.01$); and proactivity (H(2)=66,20, $P<0.01$).

TABLE 1 Description and comparisons of the Four EO Clusters: Results of Kruskal-Wallis test

	Cluster									
	1		**2**		**3**		**4**			
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	**Conover results**	**Kruskal-Wallis test**
Innovativeness	5,82	6,00	5,16	5,00	4,02	4,00	2,68	3,00	1>2;1>3;1>4;2>3;2>4;3>4	120,4229***
Risk Taking	4,36	4,25	1,89	2,00	4,26	4,00	2,00	2,00	1>2;1>4;3>2;3>4	104,6678***
Proactivity	5,72	5,67	4,31	4,33	3,88	4,00	4,61	4,67	1>2;1>3;1>4;2>3;4>3	66,2017***
Age	36,00	29,00	39,05	33,00	38,91	30,00	24,81	17,00		5,4935
Number of employee	103,29	37,00	109,16	50,00	92,80	20,00	41,25	21,50		4,9665

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*** p<0.01, **p<0.05, *p<0,10 Conover results are produced only when the Kruskal-Wallis test is statistically significant

The profiles of the four clusters are summarized here below.

Cluster 4, the “go-getters”: Companies in this cluster have the lowest propensity to innovate, nevertheless they have a relatively high proactivity (significantly higher than cluster 3, similar to cluster 2, significantly lower than cluster 4). Their risk taking propensity is low (significantly lower than cluster 3 and cluster 4, similar to cluster 2).

Cluster 2, the “innovators”: Companies in this cluster have a relatively high propensity for innovation (significantly higher than cluster 3 and 4; significantly lower than cluster 1) and proactivity but have low risk taking propensity (significantly lower than cluster 2 and cluster 3, similar to cluster 4).

Cluster 3, the “risk takers”: Companies in this cluster have a relatively low propensity for innovation (significantly lower than cluster 2 and 3; but higher than cluster 4). They are the less proactive and distinguish themselves for their high propensity to take risks (significantly higher than cluster 2 and cluster 4, similar to cluster 1).

Cluster 1, the “all stars”: Companies in this cluster have the highest propensity for innovation, they are the most proactive and have a relatively high risk taking propensity (significantly higher than cluster 2 and 1 but similar to cluster 3).

Characterization of the clusters

We then endeavored to identify the specific characteristics of each cluster, according to the variables found in the literature.

In Table 2 we present a comparison of the four clusters in order to find variations among them in terms of corporate culture, corporate structure and entrepreneur's traits. The Krukal-Wallis tests indicate that there was a statistically significant difference between the different clusters in terms of mechanic structure (H(2)=14,28; P<0.01); adhocratic culture (H(2)=37,76; P<0.01); market culture (H(2)=13,51; P<0.01); group culture (H(2)=11,35;P<0.01); need for achievement (H(2)=18,58, P<0.01); and self-efficacy (H(2)=16,44, P<0.01).

The Kruskal-Wallis test was used to pinpoint differences among clusters. When it was significant, the Conover test was then used to identify significant differences among pairs of clusters, as summarized in Table 2.

TABLE 2 Description and comparisons of the Four EO Clusters: Results of Kruskal-Wallis test

	Cluster									
	1		**2**		**3**		**4**			
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	**Conover results**	**Kruskal-Wallis test**
Mechanistic Structure	5,00	5,25	4,38	4,50	4,90	5,25	4,02	4,00	1>4; 3>4	14,28***
Organic Structure	4,56	5,00	4,49	5,00	4,62	4,33	4,07	4,00		2,8
Adhcratic Culture	5,42	5,33	4,35	4,50	4,62	4,50	3,88	4,00	1>2;1>3;1>4;3>4	37,76***
Market Culture	5,52	5,50	4,73	4,67	5,09	5,00	4,51	4,50	1>2; 1>4	13,51***
Group Culture	5,70	5,75	5,39	5,33	5,24	5,33	4,74	5,00	1>4	11,35***
Hierarchical Culture	4,56	4,67	4,61	4,50	4,77	4,67	4,38	4,33		1,18
Locus of Control	5,24	5,25	4,98	5,00	5,09	5,00	5,29	5,25		2,61
Need for Achievement	6,02	6,13	4,98	5,25	5,88	6,00	5,42	5,38	1>2;1>4;3>2	19,58***
Self-Efficacy	5,48	5,53	4,94	4,94	4,95	5,13	4,62	4,63	1>2;1>3;1>4	16,44***
Environment Hostility	4,66	4,80	5,20	5,20	5,06	5,20	4,61	4,70		4,25
Environment Dynamism	3,94	4,17	3,91	3,75	4,12	4,33	3,96	4,00		0,61

*** p<0.01, **p<0.05, *p<0,10

We note that:

Go-getters score lowest everywhere, except for the variable *need for achievement*, where they score second-lowest. For go-getter firms, the average age is 24 years, the average size is 41 employees.

Risk Takers (cluster 3) score second on market culture, need for achievement, and entrepreneurial self-efficacy. For risk-takers, the average age is 39 years, the average size is 93 employees.

Innovators (cluster 2) are characterized by a high score on the mechanistic structure and group culture, and a particularly low score on need for achievement. Innovators are, on average 39 years old, their average size is 109 employees.

All-star companies (cluster 1) rate, by the mean of each of the statistically significant variables[9] , highest of the four clusters. All-stars employ 103 people and are 37 years old, on the average.

Performance of each cluster

Table 3 shows the associations between firm characteristics and firm performance.

TABLE 3 Description and comparisons of the Four EO Clusters in terms of Performance: Results of Kruskal-Wallis test

	Cluster									
	1		**2**		**3**		**4**			
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	**Conover results**	**Kruskal-Wallis test**
Sales growth	3,76	4	2,85	3	2,88	3	2,71	2	1>2,1>3,1>4	13,44***
ROI	3,51	4	3	3	2,94	3	2,52	3	1>4	9,25**
Empl. Growth	3,44	4	2,9	3	2,7	3	2,67	3	1>2,1>3,1>4	12,05***

*** p<0.01,
**p<0.05,
*p<0,10

Our results show that the all-stars show the highest rate of perceived performance, followed by the innovators, then the risk-takers and finally the go-getters.

[9] The variables organic structure, hierarchical culture, locus of control, environmental dynamism and environmental hostility were not significantly different.

In table 4 we show the specific associations between our characterizing variables and the dimensions of firm performance.

TABLE 4 Associations between corporate characteristics and dimensions of firm performance

	EO Clusters														
	Overall			CLUSTER 1			CLUSTER 2			CLUSTER 3			CLUSTER 4		
	Sales Growth	ROI	Empl. Growth	Sales Growth	ROI	Empl. Growth	Sales Growth	ROI	Empl. Growth	Sales Growth	ROI	Empl. Growth	Sales Growth	ROI	Empl. Growth
Mechanistic Structure	0,021	0,044	0,1	-0,061	0,076	0,055	0,157	-0,199	0,182	-0,22	-0,286	-0,046	0,026	0,151	0,053
Organic Structure	0,028	0,094	0,132	-0,073	0,191	0,085	,514*	-0,103	0,423	0,075	-0,02	0,103	-0,102	0,128	0,097
Adhcratic Culture	,220*	,240**	,276**	0,101	,367*	0,218	0,238	-0,233	0,393	-0,048	-0,166	0,093	0,188	,448*	0,103
Market Culture	,184*	,230*	,300**	0,088	,313*	,318*	0,208	-0,174	0,369	0,102	-0,054	0,079	0,066	,455*	0,263
Group Culture	0,09	,185*	,191*	-0,163	0,082	0,005	0,068	-0,283	0,061	0,251	0,157	0,31	-0,049	0,411	0,182
Hierarchical Culture	-0,097	0,03	-0,039	-0,154	0,16	-0,017	0,14	-0,081	0,301	0,112	-0,021	0,016	-0,248	0,098	-0,121
Locus of Control	0,162	,188*	,208*	,318*	0,236	0,251	-0,158	0,046	-0,002	0,201	0,195	0,136	0,014	0,2	0,326
Need for Achievement	0,113	,208*	0,086	-0,052	0,123	-0,15	0,181	0,367	0,246	-0,094	-0,204	-0,137	0,166	0,396	0,296
Self Efficacy	0,095	,204*	,220*	-0,043	0,095	0,119	0,064	-0,061	0,221	-0,119	-0,049	0,064	0,073	0,42	0,179
Environment Hostility	-,290**	-,283**	-,246**	0,071	-0,176	0,13	-0,252	-0,135	-0,197	-,346*	-0,294	-,345*	-,636**	-0,426	-,614**
Environment Dynamism	-0,142	-,267**	-0,071	-0,042	-0,243	0,179	-0,007	-0,313	0,085	-0,184	-0,265	-0,167	-0,258	-0,239	-0,385
N	119	119	119	45	45	45	20	20	20	33	33	33	21	21	21

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Sample Correlations were used to explore the relationships between corporate characteristics and performance. The significant correlations among measures of corporate characteristics and performance on the overall sample range between .19 and 0.30. Adhocratic culture and market culture are positively and significantly correlated to all the measures of performance. Market and group cultures are positively associated with economic profitability (ROI) and employee growth. The same relationships are found for locus of control and self-efficacy. Need for achievement and also environmental dynamism are positively associated with economic profitability (ROI) while environmental hostility is negatively associated with all the dimensions of performance.

In cluster 1, the "All Stars", a significant a positive relationship emerges between adhocratic and market culture and performance (ROI in the former case, ROI and employee growth in the second). Differently from the overall results, for cluster 1, there is a positive relationship between locus of control and sales growth.

A different frame is found for cluster 2, the innovators. In this case the only positive relationship was found between organic structure and sales growth.

Companies' belonging to cluster 3 suffer significantly from the presence of a hostile environment especially in terms of ability to grow.

The same can be said for companies from cluster 4. For these companies a positive relationship between economic profitability (ROI) and the fact of having a market and adhocratic culture is found.

DISCUSSION

To summarize, to create homogeneous groups in terms of EO (innovativeness, risk taking, proactivity), we used the Ward's method with squared Euclidean distance, a hierarchical cluster analysis procedure, considered as one of the superior hierarchical cluster methods. Second, as our clusters violate the normality and homogeneity of variance assumptions of one-way ANOVA, we applied a non-parametric test (Kruskal-Wallis) and post-hoc analysis to detect any statistically significant difference between the subgroups. Finally, to see *where* the clusters were statistically different, we performed a test for pairwise comparison of subgroups according to Conover (1999).

Our sample divided into four clusters, three showing one dominant dimension, the fourth scoring high on all of them. It is interesting to note that our empirical findings support, in the same sample two of the conceptualizations of EO. The three independently varying dimensions appear in the first three clusters, and the "entrepreneurial firm" in the fourth.

We expected that the go-getters, firms which demonstrate proactiveness as dominant dimension, would be led by a CEO who manifests a high need for achievement, adopts an organic organizational structure, be young and small, develop a market culture, and benefit from a dynamic and munificent environment. Our results show that CEOs of go-getter firms do indeed have a high need for achievement (McClelland, 1961, 1965) pushing them to strive ever farther, hoping to reach perfection. These individuals dedicate more time to elaborating strategies to outperform, using analytical decision-making and market-oriented strategies, traits which influence their organizations (Miller & Dröge, 1986; Miller & Toulouse, 1986a). Our results report a relationship between market and adhocratic culture (Cameron & Quinn, 2006) and economic profitability (ROI). As the first is results-oriented, valuing productivity, competitiveness and financial return and the second has for long term objective growth, these results are coherent. These firms are on the average much younger and smaller than the firms of the other three clusters (table 1). Taken together, these findings confirm and develop those of Davidsson (1991). We can identify the proactive firm as one that is smaller and younger, preoccupied by marshaling enough resources to ensure its survival according to the need perceived by its top manager. The market-orientation of the CEO induces the organization to mimic the same, which influences economic profitability. We encourage these firms to take measures not only towards proactiveness, but to mitigate the downsides of the liability of newness through developing social ties to gain access to resources (Su, et al., 2011) and to formalize roles (Bettinelli, Randerson, & Fayolle, 2012) to structure action.

According to our theoretical developments, the risk-takers should be led by a top manager who is endowed with entrepreneurial self-efficacy, adopt an organic structure, will be either start-ups or older firms, develop an adhocratic culture, and benefit from a moderately dynamic and munificent external environment. Our results confirm that the personality of the top manager weighs heavily in risk-taking firms: they demonstrate a high need for achievement and a high entrepreneurial self-efficacy. The need to surpass themselves – nAch - (McClelland, 1961, 1965) combined with the belief they will are capable of performing tasks associated with new venture management –ESE- (Boyd & Vozikis, 1994) may blind them to the dangers of their behaviors. This is consistent with the literature: the greater the perception of efficacy, the more likely the individual will actually take risks and adopt an entrepreneurial behavior (Boyd & Vozikis, 1994; Krueger Jr & Dickson, 1994). These firms adopt a market culture, are results oriented through the maximization of production (Cameron & Quinn, 2006), whereas we expected that they would prefer an adhocratic culture, based on dynamism, entrepreneurship and creativity. This may be due to the preponderance of the personality of the top manager, who instead of encouraging the creation of new products and services by the members of the firm, does these jobs himself and requires the organization to maximize their production. The preponderance of market-related functions and the orientation towards maximizing can explain that these firms score well on sales growth. For risk-taking firms, we note a relationship between environmental hostility and poor financial performance and employee growth. Hostile environments are those in which unfavorable forces incur changes to a firm's industry or competitive intensity (Shaker A. Zahra, 1993b). Our theoretical developments led us to believe that risk-taking firms would thrive in a dynamic and munificent environment; whereas risk taking may the way firms cope with environmental hostility. The ratio age/size show that these firms are older yet small (table1): they have survived but not grown. The contingency literature dictates that firm structure should "fit" with the firm's environment (e.g. (Miller, 1983; Miller & Friesen, 1983; Naman & Slevin, 1993) and Kreiser and Davis's (2010) conceptual model positing that firms with a low EO operating in hostile and stable environments will adopt a mechanistic structure is not confirmed here.

Our literature review lead us to believe that innovators would be characterized by the high internal locus of control of the top manager, an organic structure, be older and larger, develop a clan culture, and benefit from a dynamic and munificent environment. Our findings show that for these firms, the personality of the top manager has little influence: the top manager seems to step back and empower the members of his / her firm to act. Contrary to our expectations (our literature review brought us to believe that the flexibility of the organic structure would characterize the innovative form) we find that the mechanistic structure prevails. We find here a first element of response to D. Miller's (2011) question: when and how do structural routines actually *foster* EO?": in innovative firms. Our findings confirm those of (De Burcharth & Ulhoi, 2011; R. Kanter, 1985). The mechanistic structure conjugated with a group culture facilitates innovation. The first provides the bricks: it identifies formal roles, established structures, and hierarchy: it provides stability. The second provides the cement: flexibility, faith in human potential, commitment and human resource development: it is conducive to team spirit, the sense of belonging, and participation. Our findings confirm those of (Jennings & Lumpkin, 1989; J. A. Pearce II & David, 1983), who identified that a participative management style is primordial to innovation. These firms are larger and older: meaning they have the slack resources (Covin & Slevin, 1991; G. G. Dess, et al., 1999; Miller & Friesen, 1982, 1983) needed to innovate, they are better able to acquire and integrate knowledge (Shaker A. Zahra & George, 2002; Shaker A. Zahra, Nielsen, et al., 1999). Environmental factors were not statistically significant for these firms: does this indicate that innovation is internally triggered and not a response to the environment? These firms can brag moderate to high rates on all performance indicators, as well as a specific relationship between sales growth and the organic structure.

All-stars, firms scoring high on all three dimensions of EO, should be led by a CEO with an internal locus of control, high need for achievement, and entrepreneurial self-efficacy. These firms should adopt a mixed structure; firm age and size should not be significant. All-stars should develop an adhocratic culture and thrive in any environment. In our study, these firms are characterized by high rates on all of the statistically significant variables, as well as the highest rates of performance: this is to be underscored. We have here the "entrepreneurial firm" described by the literature, scoring high on all three dimensions of EO, and the superior performance of this type of firm is confirmed in our study. It is in these firms that the traits of the top manager have the strongest impact: we note in particular a relationship between the locus of control or the CEO and sales growth. The entrepreneurial firm is led by an individual with a high need for achievement, an internal locus of control, and perceived entrepreneurial self-efficacy. He/she needs to succeed (nAch), wants his/her successes to be personal (locus of control), and thinks he/she has the competencies to get there (ESE). Previous research indicates that the organic structure would positively affect the relationship EO – performance (Covin & Slevin, 1989; Naman & Slevin, 1993; Slevin & Covin, 1990), its flexibility enabling to pursue identified opportunities (Covin & Slevin, 1991; Khandwalla, 1977; Miller & Friesen, 1982, 1983); we expected the organic structure to characterize these firms. This is not the case in our study: contrary to this literature, these firms adopt a mechanistic structure. As with the innovative firms, the bricks are the same: stability coming from structure. And the cement? We believed that the culture which values dynamism, entrepreneurship, and creativity, the adhocratic culture, would characterize this cluster. Such is not the case: we find that market culture and clan culture are both statistically significant for the "all-stars". As previously mentioned, the market culture is results oriented, promoting productivity, competitiveness, financial return, rational decision-making, and success (Cameron & Quinn, 2006). This culture is associated with firm values and functions that are market related: those which are related to transactions with customers, suppliers, partners, and employees. This culture was related to the pro-active firms. These firms are also characterized by the clan culture. This culture characterized also the innovators, and aims at installing a friendly work atmosphere. These firms embrace values such as flexibility, faith in human potential, commitment and human resource development. Here, team spirit, the sense of belonging and participation lead to learning and creativity. We note that firms with a high EO have a double culture: the market culture which is externally oriented, and the clan culture which is internally oriented. These firms are older, but compared to the other clusters have a different approach. The innovators are older and have more employees: slack resources (here, human) are needed to innovate. The risk takers have few employees whereas they are older: the environment inhibits their growth. Environment is not significant for the all-stars: they can thrive anywhere.

This study has implications for manager and entrepreneurs. First, it demonstrates that EO shows different faces in different contexts. We have identified that the “entrepreneurial firm” predominant in the EO literature does indeed exist, and is characterized by the following traits: a mechanistic structure, a predominantly market and group culture, a strong need for achievement, internal locus of control and entrepreneurial self-efficacy of the top manager. They show high scores on all measures of performance (ROI, sales growth, employee growth). In addition, this work offers also three additional configurations of EO where one of the dimensions is predominant. These configurations offer a map of firm-level entrepreneurship, where the type of EO is associated to different structures and cultures: this will help entrepreneurs and managers read the identity card of their firm according to its EO, and navigate more serenely towards success. For example, the go-getters will prefer to grow towards innovation to attain one day the status of all stars. This work also strived to identify the antecedents of performance and growth according to each cluster profile; this will help entrepreneurs understand and define more suitable corporate strategies.

This study suffers from several limitations. The first concerns our sample: this study is the fruit of a partnership with two regional chambers of commerce in France; our sample was not constituted randomly. Controlling the validity of our sample through a T-test is a first step. We also suspect a bias in our all-star firms: the firms that perceive themselves as entrepreneurial are more likely to participate in the study, and may show a tendency towards over-optimism in their responses. A third limitation concerns cultural biases. We know that EO is subject to cultural biases (Knight, 1997); Hansen et al (2011) found that measurements of EO using the Covin and Slevin scales are more robust for risk-taking than for innovativeness and pro-activeness when doing cross-national research; Kreiser et al., 2010 (p. 960) found that in particular countries "whose legal systems are based on French civil law tend to display lower levels of both risk taking and proactive behaviors.". We precisely used these scales in France; aware of this limitation, we were particularly attentive to the translation of the scales, pre-tests, and internal validity.

CONCLUSION

With this configurational approach to entrepreneurial orientation, we offer a taxonomy of firms according to their EO. Our findings lead to four clusters: go-getters, risk-takers, innovators, and all-stars. We then characterized these groups of firms according to the variables most often found in the literature: personality of the top manager, firm structure, corporate culture, environment, age and size, and finally performance. The go-getters have proactiveness as predominant dimension of EO. This may result from the characteristics (high need for achievement) of the top manager, his/ her perceived need furnishing a thrust for the firm. These firms are the smallest and youngest in our sample, and show the lowest levels of perceived performance. Risk-taking firms are led by top managers with high need for achievement and entrepreneurial self-efficacy, they develop a primarily a market culture based on the maximization of production and results leading to a high rate in sales growth. The innovators are characterized by a group culture leading to employee growth and financial performance, as well as a mechanistic structure. And finally, the all-star firms show the highest level of perceived performance, the highest level of the three sub-dimensions of EO, as well as the highest level of need for achievement, entrepreneurial self-efficacy, mechanistic structure, market and group corporate cultures. We view this study as a useful step in helping entrepreneurs and mangers classify the firm they are leading, understanding what the antecedents of performance and growth are according to each company profile and hopefully navigate more serenely towards success. We hope this study sheds more light on the subject and stimulates further work in the domain.

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6. General discussion

In this concluding chapter I wish to achieve two things. First, I seek to summarize the contributions of the four articles (table 1) and relate the findings to the questions raised in the general introduction. Second, I summarize the main contributions of this thesis and offer my thoughts on existing and future works.

6.1. ARTICLE OVERVIEW AND CONCEPTUAL LINKS

The first objective of my doctoral work was to contribute to a better understanding of what entrepreneurship in the organizational setting actually *is*. In order to achieve this, I began by comparing EO to another, similar conceptualization (i.e. by identifying *what it is not*). I then embraced a wider perspective to compare the main models in which it was included. Third, I offer a critical perspective on entrepreneurial orientation, to finally offer a taxonomy of firms according to their EO.

Table 1: the contributions of each of the articles in this dissertation

Article	Contribution
Entrepreneurial Management and Entrepreneurial Orientation: same, different or both?	EO and EM are not analogous. EO is void of strategic intent; organizational factors (e.g. management) are mediating variables between the posited relationship EO – performance. These two concepts are embedded in different paradigms of entrepreneurship
Organizational entrepreneurship: a comparison of the main models	The models (Miller, Covin & Slevin, Lumpkin & Dess, and Ireland et al) are very different: they are embedded in different paradigms of entrepreneurship, carrying different assumptions and biases. For the most, they are incommensurable.
A critical perspective on Entrepreneurial Orientation : conceptual, Theoretical, and Methodological Issues	There are in fact at least four conceptualizations behind the term "EO". The conceptualization offered by Miller in 1983 has been unheard or misunderstood. An empirical study is needed to identify the gestalts of the independently varying dimensions.
A Taxonomic Approach to Entrepreneurial Orientation	Empirical evidence of the multi-dimensional view (we find three clusters which have one predominant dimension of EO) and of the unidimensional view (our fourth cluster scores high on all three: the "entrepreneurial firm"). We contextualize each cluster according to the personality of the top manager, the organizational structure, its size and age,

	corporate culture, and the environment in which it evolves.

6.1.1. Entrepreneurial Orientation and Entrepreneurial Management

Here, our main question was: are EO and EM the same? Lumpkin and Dess (1996) posited without demonstrating that EO and EM were analogous. The first is conceptualized as "methods, practices, and decision-making styles" (Lumpkin & Dess, 1996), and the second as a "mode of management" (Stevenson & Gumpert, 1985; Stevenson & Jarrillo-Mossi, 1986, 1990) comprised of five dimensions. Both set a continuum where on the polar ends figure the entrepreneurial organization and the non-entrepreneurial or bureaucratic organization. At this point of my research, I adopted what was at that time the unique conceptualization of EO, generally defined as a multi-dimensional construct comprised of three to five dimensions, built over time through the accumulation of previous works (Covin & Slevin, 1991; Lumpkin & Dess, 1996; Miller, 1983). Our comparison, published in the French language peer reviewed journal "Management & Avenir" (Randerson & Fayolle, 2010b), concludes that these two conceptualizations are distinct on a strategic level as well as an operational level.

EO is void of strategic intent: the entrepreneurial strategy results from the behaviors of innovation, proactiveness, and risk-taking aimed at new entry. EM, on the contrary positions strategic intent at the heart of the management system. 'Strategic orientation' relates to strategy formation according to opportunity identification and pursuit. 'Control of resources' indicates that opportunity is pursued regardless of resources currently controlled, and 'commitment to opportunity' encourages action and commitment.

On the organizational level Lumpkin and Dess's conceptualization sets organizational and environmental variables which mediate or moderate the relationship EO – performance. The dimensions of EM 'commitment of resources', 'structure' and 'reward system', as well as ‘organizational culture’ added later by Brown and colleagues (Brown, et al., 2001) can be associated with the organizational variables moderating the EO – performance relationship.

What lessons did I learn from this first research? First, it led me to understand the importance of the definition of entrepreneurship in which each of these concepts was embedded. EO (by Lumpkin and Dess) equates entrepreneurship to new entry (restrictive definition), whereas EM adopts a process definition: entrepreneurship is a set of activities (opportunity pursuit) independent of the result. With the first we restrict our study to the successful initiatives; our research bears a selection bias – we are studying only a fraction of the phenomenon. Second I discovered that in fact, there are several models of firm-level entrepreneurship which integrate EO. Do they comport the same bias? What is the relationship between strategy and entrepreneurship? Third, I began to doubt that extant research adopted and developed Miller’s aggregate entrepreneurship variable in the way it was meant to be used: I had discovered a new research opportunity.

6.1.2. A comparative study of the models of organizational entrepreneurship

Miller’s entrepreneurship variable was adopted and adapted into several models of firm – level entrepreneurship. My second quest was to identify and compare them, to better understand the multiplicity and identify the differences between these models. This work was presented first at the CIFEPME in Bordeaux, then (in the present version) at the AIMS in Nantes (Randerson & Fayolle, 2011).

The models of Miller (Miller, 1983), Stevenson (Stevenson & Jarrillo-Mossi, 1990), Covin and Slevin (Covin & Slevin, 1991) – critiqued and improved by Zahra (Shaker A. Zahra, 1993a), Lumpkin and Dess (Lumpkin & Dess, 1996) and Ireland and colleagues (Ireland, et al., 2009) were included in the scope of this study because they were all based on or assimilated to EO.

There are fundamental differences among these models. First, here also the definition of entrepreneurship in which each model is embedded impacts the scope of the model. Miller and Covin and Slevin adopt the behavioral definition, Stevenson a process definition, and Lumpkin and Dess restrict to new entry. Why is this important? The definition of entrepreneurship in which the model is embedded will define which initiatives will be included in the study of the phenomenon, inducing biases, carrying shared assumptions or requiring specific research methods.

A second major difference is the expected organizational outcome. I adopted the distinction suggested by Birkinshaw (Birkinshaw, 1997), who divides corporate entrepreneurship initiatives in two categories: "focused corporate entrepreneurship" (or "corporate venturing") is when entrepreneurial activities are trusted to semi-autonomous units vested with the mission to develop new business opportunities. "Dispersed corporate entrepreneurship" (or intrapreneurship) assumes that each individual in the organization is gifted with ambidexterity – he or she can more or less simultaneously develop and use managerial and entrepreneurial capabilities. Miller and Lumpkin and Dess set entrepreneurship in one part of the organization: the first according to context, the second by entrusting entrepreneurial activities to "key players". Stevenson, Covin and Slevin and Ireland and colleagues assume that any member of the organization can initiate an entrepreneurial activity. This distinction matters because each of these types of initiatives carries managerial implications (Basso, 2006). In the focused mode, the semi-autonomous unit will be managed differently than the mainstream: this management and reward system should be elaborated *ad hoc*. In the dispersed mode, managing the "intrapreneur" usually bears upon his or her direct supervisor.

A third distinction relates to the role strategy plays in each of these models. In Miller's work, strategy was included among the possible processes leading to entrepreneurship: strategy and entrepreneurship were correlated in planning firms. For Stevenson and Ireland et al., entrepreneurship (opportunity pursuit) *is* the strategy adopted by entrepreneurial firms. Covin and Slevin's model, as well as Lumpkin and Dess's, strategy is a mediating variable between EO and firm performance. The separation strategy / entrepreneurship leaves room for a possible contradiction between these two organizational efforts.

A fourth element which enables a better comprehension is the way each author qualified his/her model. Miller positioned his work in the contingency theory, insisting on the importance of context. Stevenson created EM as a "mode of management". Lumpkin and Dess used Miller's scale to measure entrepreneurial intensity of the firm. But most importantly, the models by Covin and Slevin and by Ireland and his colleagues were meant to be "comprehensive": these models included in their scope the antecedents and consequences of organizational entrepreneurship, seeking to identify a unique path towards entrepreneurship. Great efforts were invested to identify exhaustively the pertinent variables and sometimes the interactions among them, but we have few indications about the contents. This influenced greatly my doctoral reflections, because at this moment I realized that some of the main assumptions of Miller's work had been baffled. The entrepreneurship aggregate variable that had become EO was comprised of the dimensions proactiveness, risk-taking, and innovation. These three dimensions do not have the same antecedents. Positing that they have as a collective consequence firm-performance is taking a reach; positing that they are each related to firm performance via moderating or mediating variables is banal. Hence, my third article, where I dissect EO.

6.1.3. A critical perspective on entrepreneurial orientation

This article is a critical perspective on entrepreneurial orientation. Through an in-depth analysis of the literature, I identified issues on the theoretical, conceptual, and empirical levels (table 2).

Table 2: The theoretical, conceptual, and empirical issues weighing on EO

THEORETICAL ISSUES	CONCEPTUAL ISSUES	EMPIRICAL ISSUES
Inconsistencies	***Competing conceptualizations***	***The Miller/Covin & Slevin scales***
Taking Miller's entrepreneurship variable out of context violated his fundamental assumptions	According to Covin and Lumpkin: two conceptualizations, unidimensional and multidimensional	Scalar invariance is not established (Hansen et al; 2011)
Miller's work should have opened the debate about firm-level entrepreneurial behaviors – consensus was too quickly reached	Miller insists that the three dimensions vary independently, and it is precisely how they vary that is interesting	A between-country analysis provides evidence of important differences in risk-taking and proactiveness
"EO" has a wide range of definitions, many incompatible with each other.	Kresier's strategic decision-making process is a fourth conceptualization	These scales suffer from "problems" (Lumpkin et al. 2009)
Rigorous research is impeded by the multiple conceptualizations (which had not yet been recognized as such)	Clear and consistent conceptualizations are necessary to build a cumulative body of knowledge	When we seek to observe differential relationships between the dimensions and other variables (Kreiser, 2002)
EO does not consider context	***A firm level construct based on individual actions***	***A short review of the dimensions***
EO context (independently varying dimensions)	Who acts depends on the conceptualization	Risk-taking: it is unclear of the firm or the individual, *who* is to take the risk
Context of action (who, where, when)	These behaviors can occur at different levels of the organization	Innovation: this activity requires slack resources – does this restrict innovation to resourceful, high-tech firms?
National context (cultures can carry differences)	These behaviors can occur by waves over time	Proactiveness and competitive aggressiveness: are these really two different dimensions?
Alternative explanations or arguments have been omitted	The particular situation of non-managerial employees	Autonomy: defined in a tautological manner

These issues identified, I suggest overall recommendations for future research. In order to expand our knowledge base, it is important to go back to the roots. Using qualitative methods can contribute to establishing construct validity - e.g. (Short, et al., 2010) for Lumpkin and Dess's conceptualization. Contents and relationships can also be investigated using secondary data

(Covin & Wales, 2012; Douglas W. Lyon, et al., 2000; Miller & Le Breton-Miller, 2011). Multiplying the levels of analysis will also contribute to enriching the body of knowledge. Additional or alternative dimensions can be identified according to context.

More importantly, a clear view of the conceptual domain and definition of the construct and each of it dimensions is greatly needed. This can take the path of one conceptualization upon which the scientific community agrees, or the separate development of several conceptualizations. In the second case, scholars will need to be attentive to embrace the same definition of the same construct and of each of its dimensions to build knowledge about the chosen conceptualization. Table three shows the evolution of the conceptualizations of EO, in three stages. In stage one there was more or less consensus on a vague construct. In stage two, the Covin and Lumpkin suggested "taking the fork in the road". We identify four main conceptualizations of which the original, which never blossomed.

Finally, it is important to choose a measurement method which is consistent with the conceptual definition adopted.

Table 3: The evolution of the conceptualization(s) of EO

Stage three: Randerson & Fayolle, 2012	Covin & Slevin: the three dimensions covary. The ultimate dependent variable is firm performance.	Miller: the three dimensions can (and were meant to) vary independently. Context and configurations count. We should see first what it is and how to get there; performance implications can come later.	Kreiser and colleagues: the dimensions have a unique impact. National culture impacts dimensions and measures.	Lumpkin & Dess: the dimensions vary independently; The relationship EO – performance is mediated or moderated by variables internal and external to the firm
Stage two: Basso et al.	The unidemensional	The multidimensional conceptualization is comprised of five independently varying dimensions (Lumpkin and Dess)		

2009, Covin & Lumpkin, 2011	conceptualization of EO is comprised of three co-varying dimensions (Miller, Covin and Slevin)	
Stage one: before 2009	EO is a multi-dimensional construct comprised of three to five dimensions. It is the fruit of the works of Miller, Covin & Slevin, Lumpkin and Dess	

These considerations in mind, we undertook to identify empirically the gestalts of EO (Miller's conceptualization) using the appropriate scales and research design.

6.1.4. Back to the roots: a configurational approach

To be able to offer a configuration of firms according to their EO we designed an empirical study setting the dimensions of innovation, risk-taking, and proactiveness as dependent variable to form clusters of firms. We then characterized our clusters according to the personality of the top manager, organization structure, firm size and age, corporate culture, the environment in which the cluster evolves, as well as type and level of performance.

Our sample splits into four clusters: three in which one dimension of EO is preponderant, and one which score high on all three dimensions.

Our go-getters are mainly proactive. They are led by top managers who show a high need for achievement; they are on the average much younger and smaller than the firms of the other three clusters. We find a relationship between the market and adhocratic culture and economic profitability (ROI): the first is results-oriented, values productivity, competitiveness and financial return, the second has for objective long term growth. This cluster confirms and develops the findings of Davidsson (Davidsson, 1991), who found that firms will continue to seek growth as long as it perceives need to marshal resources to ensure firm survival.

Our risk-takers are led by a top manager whose personality weighs heavily on the firm: they demonstrate a high need for achievement and a high entrepreneurial self-efficacy. The need to surpass themselves (nAch) and the belief they are capable of performing tasks associated with new venture management (ESE), may blind them to the dangers of their behaviors. These firms adopt a market culture, are results-oriented through the maximization of production, which may explain why they perform well on sales growth. They evolve in turbulent environments, which limits their financial performance and employee growth (these firms are older, yet smaller).

For the innovators, the personality of the top manager has little influence. In these firms, the mechanistic structure provides the bricks, the corporate culture the mortar. The first provides formal roles and responsibilities; the second, a clan culture, provides flexibility, faith in human potential, commitment and human resource development. These firms are larger and older: they have the slack resources needed to innovate; they are better able to acquire and integrate knowledge. They also have a moderate to high score on all three measures of performance (ROI, sales growth, and employee growth).

These first three clusters are empirical illustrations of a multi-dimensional view. Each cluster shows a predominant dimension and the organizational and environmental characteristics leading to it. They have different forms and levels of performance.

Our fourth cluster is an empirical manifestation of a unidimensional view: these firms score high on all three dimensions, as well as on all three indicators of performance. This cluster represents the "entrepreneurial firm" - we named these firms "all-stars". They are led by a top manager who needs to succeed (nAch), wants his /her success to be personal (locus of control), and thinks that he/she has the competencies to do it. Like the innovators, these firms adopt a mechanistic structure. But all-star firms have a double culture: the market culture (results-oriented, promoting productivity and financial return, rational-decision-making and success) and the clan culture (promoting flexibility, faith in human potential, commitment and human resource development).

Table 4: clusters and their characterization

Go-getters	**Innovators**
-proactive -younger and smaller - nAch of the top manager - market culture -financial performance	-innovation -older and larger -no influence of the top manager's personality -mechanistic structure -clan culture -moderate to high on the three indicators of performance
Risk-takers	**All stars**
-risk taking -nAch and ESE of the top manager -older yet small -market culture -overall poorest performers -sales growth only -turbulent environment	-proactiveness, innovation, risk-taking -nAch, ESE, locus of control of the top manager -mechanistic structure -clan culture AND market culture -high on all indicators of performance

At this point in my work, I have not yet identified if these gestalts are successive possible stages in a firm's development, or how a firm can get from the go-getter stage to being an all-star, or how to avoid becoming a risk-taker. Moreover, this study presents configurations of firms – we are still confronted with endogeneity issues (Miller, 2011): we cannot assert if the EO gestalt creates or is created by these organizational and environmental characteristics.

6.2. CONTRIBUTIONS OF THIS THESIS AND SUGGESTIONS FOR FUTURE RESEARCH

With this doctoral work, I bring several contributions to the literature.

I contribute to the EM literature by giving it back its existence: if it is conceptually close to EO it is distinct and deserves further scholarly attention.

I contribute to the critical discussion of EO by mapping and synthesizing existing issues. The identification of these blind spots is necessary to be able to produce a (or several) bodies of cumulative knowledge.

I contribute to EO literature on the whole by identifying that there are actually at least four main conceptualizations to be explored. The initial conceptualization by Miller has gone unheard or misunderstood: I contributed to its clarification. Moreover, my empirical study establishes this conceptualization, but also brings empirical support for another, multidimensional conceptualization.

I contribute to general management literature: the characterization of our clusters added, for example to the literatures relating to organization structure, growth, corporate culture in their relationship to EO but also to each dimension.

Further research is greatly needed. We need to follow this path "back to the roots" to re-visit our field with this new lens in mind. Which conceptualization are we looking at? Are we comparing things that are comparable? Have we precisely defined the conceptualization as well as the elements which compose it? Can we deepen our understanding of the phenomenon through qualitative studies or with the help of secondary data?

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